

Conversion Guide for SAP BW/4HANA 2021

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Revision Log

Ver- sion	Date	Remarks
1.0	2021-10-26	Initial version of the Conversion Guide for SAP BW/4HANA 2021 (Template was SAP BW4/HANA 2.0)
1.1	2022-05-18	Adjustments
1.2	2024-04-29	Updated "Configuring the SAP BW/4HANA Cockpit / Launchpad" (3.9.2, 4.14, and 5.1.4)

1 Conversion Guide for SAP BW/4HANA

SAP BW/4HANA is SAP's next generation data warehouse solution. It is a new product (not a legal successor of any existing SAP Business Warehouse solution), built entirely on one of the most advanced in-memory platforms today – SAP HANA. It provides a simple set of objects that is well suited for modelling an agile and flexible layered architecture of a modern data warehouse. SAP BW/4HANA manages all sorts of data, whether from SAP applications or other systems, structured or unstructured, and allows accessing of all models through an open SQL interface. SAP BW/4HANA comes with state-of-the-art user interfaces for administrators, developers, and end users as well as completely SAP HANA-optimized processes that let you leverage vast amounts of data in real time for competitive advantage.

The core functionality of SAP BW is preserved and the transition to SAP BW/4HANA can be compared with the transition of SAP Business Suite to SAP S/4HANA. As part of this transition, SAP BW/4HANA will drastically reduce the number of data objects to be stored and maintained. All future innovations will take place in SAP BW/4HANA. Prior releases of SAP BW powered by SAP HANA will move into maintenance, receiving little development or new functionality moving forward. It is therefore recommended to transition your SAP BW system to SAP BW/4HANA.

With SAP BW/4HANA, SAP has re-architected its solution for modern data warehousing processes that the ever-increasing digitization of the world demands. Re-architecting a solution that has been growing over the past 20 years and has, at points, evolved into different data structures and architectures means that we also have to decide on one data structure and architecture as we move forward. This is the only way that we can prepare the solution for increased simplicity and faster innovation cycles.

In most cases, SAP is pursuing the functional strategies that were already laid out in the existing SAP Business Warehouse world, where many innovations originate from. Consequently, it is possible to prepare for the system conversion to SAP BW/4HANA by already adopting the future target capabilities in the classic SAP Business Warehouse powered by SAP HANA.

The purpose of this document is to explain the end-to-end conversion process with which you can transition from your existing SAP Business Warehouse to the next-generation data warehouse solution: SAP BW/4HANA.

1.1 Disclaimer

Converting an SAP BW system to SAP BW/4HANA is not a simple task. There is no "wizard" that magically converts everything. Instead, SAP provides a well-defined process to guide you through the renovation of your data warehouse. We have developed tools to automate this renovation where applicable and feasible, but they are not built or meant to fix badly designed models or clean-up neglected systems. In any conversion there is a need for manual interaction and re-design. The amount of such manual tasks varies from customer to customer and depends on the configuration and state of the SAP BW system. For example, a conversion of newer systems that have been configured using SAP HANA-optimized objects and LSA++ from the beginning will be relatively easy. In contrast to that, a conversion of older systems that are running on non-SAP HANA databases, using out-of-date interfaces, legacy data models, and multiple redundant layers can become quite challenging.

It is therefore essential that you understand the differences between SAP BW and SAP BW/4HANA and how to handle them, thoroughly analyze your existing system, estimate the complexity and duration of required tasks, properly plan all conversion activities, learn and practice to use the conversion tools, test the conversion processes ideally with a "copy of production", and actively manage changes to your business. It speaks for itself that good project management and skilled personnel will be required to execute a timely and efficient conversion of a complete SAP BW system. If done right, your conversion to SAP BW/4HANA will be very successful.

SAP offers several ways to help. To get started run a [SAP Readiness Check](#) or book a [SAP Value Assurance service for SAP BW/4HANA](#).

1.2 Business Scenarios

SAP provides three paths for the conversion from SAP BW to SAP BW/4HANA, the so-called "In-place Conversion", "Remote Conversion", and "Shell Conversion".

1.2.1 In-place Conversion

The In-place Conversion takes your existing SAP BW landscape through a transition process that transfers step-by-step data models and flows to objects compatible with SAP BW/4HANA. Prerequisite is SAP BW 7.5 powered by SAP HANA, the last major release of SAP BW.

During the preparation time, you will use the Pre-Check Tool to analyze the meta data repository of your SAP BW system and lay out a to-do list for the transition process, run the Sizing Report to determine the required size of hardware for SAP BW/4HANA, and use the Code Scan Tool to analyze your custom developments – including code embedded in various SAP BW objects like transformations – for compatibility with SAP BW/4HANA.

When you get to the realization phase, you will spend most time using the Scope Transfer Tool, which allows you to create SAP HANA-optimized objects for all your classic SAP BW data models and flows. Pick a data target, like a MultiProvider and the tool will determine all dependent object like InfoCubes, classic DataStore Objects, transformations, and DTPs and

allow you to quickly create equivalent CompositeProviders and Advanced DataStore Objects including matching transformations and DTPs. During an In-place Conversion, the transfer happens inside your SAP BW on SAP HANA system.

For In-place Conversion, several sprints using the Scope Transfer Tool will lead to a system that runs only data model and flows that are compatible with SAP BW/4HANA... but still in SAP BW on SAP HANA (along the way you use another cool tool to adjust user roles and authorizations, which will be much appreciated by your security team). The ultimate step is therefore a technical system conversion that removes the old SAP BW code and replaces it with SAP BW/4HANA. This is when you finally get to use the goodies like Data Tiering Optimization and the SAP BW/4HANA Web Administration Cockpit.

1.2.2 Remote Conversion

To perform Remote Conversion, the first step is to install a brand-new SAP BW/4HANA system. A task list is available that automates and therefore greatly simplifies the initial system setup.

The Remote Conversion approach enables you to move whole data flow or transfer only selected data flows including the data from SAP BW 7.3 with any DB to a new installation of SAP BW/4HANA. You are able to decide whether you want to build a clean system, leave old and unused objects behind. If applicable, the Remote Conversion process includes a Unicode conversion. Carve-out scenarios are also supported.

Remote Conversions are based on new installations of SAP BW/4HANA. This approach is unique in that it eliminates the need to convert an entire legacy system. No matter whether you run SAP BW on SAP HANA or some other database, the Remote Conversion enables you to pinpoint the scenarios you want to convert while still in an old system. These scenarios are then transferred into your fresh installation and converted accordingly. You can then proceed with transferring data between your old and new installation.

The Remote Conversion is available for SAP BW 7.3 and later releases. Among other advantages, this approach only includes objects that will remain relevant going forward and saves you the effort of converting your database. It thus represents the chance to build a clean system, leave old and unused objects behind while migrating to SAP BW/4HANA system.

1.2.3 Shell Conversion

If you want a fresh start i.e. preferring a greenfield approach, a Shell Conversion might be what best for you. It is available for release 7.0 to 7.5 and works like a Remote Conversion using a parallel SAP BW/4HANA landscape. Shell Conversion does not include the transfer and synchronization of existing data sets. Instead at your convenience, you can choose to load data from original sources, load data from original SAP BW system, or simply ignore historical data and start fresh.

1.3 Availability

General Availability

In-place, Shell Conversion, and Remote Conversion are released for all customers and partners. Report incidents using the SAP Support Portal, component “BW-B4H-CNV-IPL”, “BW-B4H-CNV-SHL”, or “BW-B4H-CNV-RMT”.

2 Getting Started

Read this guide carefully to get an overview of how to convert an existing SAP Business Warehouse system to SAP BW/4HANA.

This guide has to be used together with the following documents:

- SAP BW/4HANA Master Guide
- Simplification List for SAP BW/4HANA
- User Guide for SAP BW Note Analyzer
- Maintenance Planner User Guide

You find more information about these documents and guides (including where to find them), as well as additional important documents and SAP Notes relevant for the conversion in the section **Documentation and SAP Notes for the Conversion**.

The section **Overview of the Conversion Process** provides information about the distinct phases of the conversion and the tools involved.

The sections **Preparing the Conversion**, **Realizing the Conversion (In-Place Scenario)**, and **Realizing the Conversion (Remote Scenario)** provide details for those conversion phases.

2.1 Documentation and SAP Notes for the Conversion

Required Documents and SAP Notes

You require at least the following documents and SAP Notes.

Document	Available at	Comment
Simplification List for SAP BW/4HANA	help.sap.com/bw4hana20 → Simplification List	Lists the simplifications in comparison to the SAP Business Warehouse product family such as, simplified functions, merged database tables, and new data models.
Simplification List for SAP BW/4HANA	SAP Note 2421930	Contains additional essential information about simplifications.
User Guide for SAP BW Note Analyzer	help.sap.com/bw4hana20 → User Guide for SAP BW Note Analyzer	Describes how to install and update the tools related to converting from SAP BW to SAP BW/4HANA

Maintenance Planner User Guide	help.sap.com/maintenanceplanner	Describes how to use the Maintenance Planner for calculating and downloading the required stack.xml file and software packages.
SAP BW/4HANA 2021: Release Information Note	SAP Note 3100794 - Release Information/Restrictions Note for SAP BW/4HANA 2021	
SAP BW/4HANA 1.0/2.0/2021: Add-on Note	SAP Note 2189708	
SAP BW/4HANA System Sizing Note	SAP Note 2363248	Sizing tool for existing SAP BW systems is available via SAP Note 2296290 .

SAP Notes for Remote Conversion

The following documents and SAP Notes are relevant for performing a remote conversion from SAP BW to SAP BW/4HANA.

Document	Available at	Comment
SAP BW/4HANA Conversion Cockpit - System Setup & Pre-requisite	SAP Note 2513088	
DMIS Add-on Installation and Upgrade	SAP Notes 1577441 , 1577503 , and 1648747	

SAP Notes for Operational Data Provisioning

The following documents and SAP Notes are relevant for integrating SAP and BW systems with SAP BW/4HANA using Operational Data Provisioning (ODP).

Document	Available at	Comment
Operational Data Provisioning: Availability and Limitations	SAP Note 2481315	
Release of SAP Extractors for Operational Data Provisioning	SAP Note 2232584	

Operational Data Provisioning FAQ	SAP.com at Operational Data Provisioning (ODP) FAQ	
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SAP Notes for Business Content

The following documents and SAP Notes are relevant for installing Business Content on SAP BW/4HANA.

Document	Available at	Comment
Release strategy for the ABAP add-on BW4CONT / BW4CONTB	SAP Note 2393067	
Collective Note: SAP BW/4HANA Content (BW4CONT & BW4CONTB)	SAP Note 2785525	
SAP BW/4HANA Content - Recommended SAP BW/4HANA support package and SAP Notes	SAP Note 2785708	

Additional Information and SAP Notes

The following table lists important additional documents and SAP Notes.

Document	Available at	Comment
Frequently Asked Questions	FAQ for SAP BW/4HANA	Answers to many questions
Road Map "Transition to SAP BW/4HANA"	SAP Support Portal	
SAP First Guidance – Complete Functional Scope (CFS) for SAP BW/4HANA	SAP Community	
Interfaces and Customer-Specific ABAP Development	SAP Note 2462639	Converting from SAP BW to SAP BW/4HANA might have an impact on customer-specific ABAP development. Custom Code Migration might be required

Transition to SAP BW/4HANA	SAP.com at sap.com/bw4hana	General information about the system conversion to SAP BW/4HANA
Uninstalling ABAP Add-ons	SAP Note 2011192	

2.2 Difference between SAP BW/4HANA and SAP BW, powered by SAP HANA

In an SAP BW system running on an SAP HANA database, you can use various object types that are optimized for SAP HANA. These object types are an enhancement of existing object types. The CompositeProvider is an enhancement of the MultiProvider and the InfoSet for example. MultiProviders and InfoSets are therefore obsolete, if the system runs on SAP HANA, but are not deactivated in the SAP BW system in order to ensure compatibility.

In SAP BW/4HANA, the objects for data modeling, together with the processes and user interfaces, are designed precisely with implementation on an SAP HANA database in mind. Data modeling is restricted to the small number of object types that are well suited for modeling the layer architecture of a data warehouse on SAP HANA (LSA++). In SAP BW/4HANA, data warehouse models can be flexibly combined with SAP HANA views. An intuitive Eclipse-based modeling environment supports object modeling here.

SAP BW/4HANA only uses state of the art object types, processes, and object types designed for use on a SAP HANA database. Therefore, converting from SAP BW, powered by SAP HANA brings the following functional changes:

- Modeling in the Data Warehousing Workbench (SAPGUI) is replaced by modeling in the BW Modeling Tools in Eclipse.

The BW Modeling Tools have been adapted to the SAP HANA modeling environment. The objects optimized for use with SAP HANA are modeled exclusively in the BW Modeling Tools.

- Certain object types are not supported any more. These are replaced by objects types that are especially primed for use on the SAP HANA database.
- The SAP Business Explorer tools (SAP BEx tools) are not supported any more. Queries in SAP BW/4HANA are now defined in the BW Modeling Tools. For the visualization and analysis of data, you can use SAP Analytics Cloud (SAC) or state of the art SAP BusinessObjects tools, such as SAP BusinessObjects Analysis, Edition for Microsoft Office or SAP BusinessObjects Lumira. These tools are especially designed with the needs of SAP BW users in mind. For more information, see "[SAP Business Explorer Maintenance Policy](#)" blog.

→ Note

Be aware of the licensing conditions when using SAP BusinessObjects tools or SAP Analytics Cloud.

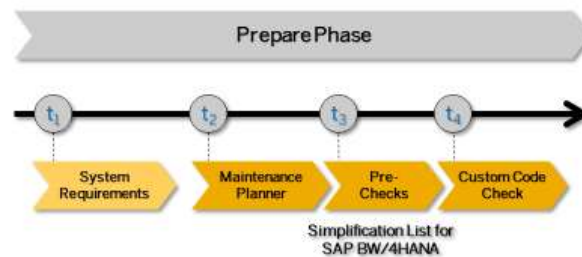
2.3 Overview of Conversion Process

SAP provides a process for the conversion to SAP BW/4HANA. This chapter gives an overview of the tools, the phases, and the activities involved in the process.

→ Recommendation

We recommend that you do the activities in the sequence shown in the figure and explained in the sections below.

2.3.1 Prepare Phase



Simplification List

To enable you to do an optimal planning of your path to SAP BW/4HANA, we provide the Simplification List for SAP BW/4HANA. The Simplification List is the complete collection of simplification items. It provides the key information by application or functional area about the simplifications in SAP BW/4HANA. Each simplification item details the preparatory and follow-on steps that need to be considered for the conversion from a business and a technical point of view. Each item is available as an SAP Note that may contain additional information.

You find the Simplification List at help.sap.com/bw4hana20 → Simplification List. See also SAP Note [2421930](https://support.sap.com/en/notes/2421930.html), to which the Simplification List is also attached as an Excel spreadsheet.

→ Note

You should read the Simplification List to get an overview of all the simplification items that are relevant for your specific conversion. When you have identified the simplification items relevant for your conversion, you also need to look at the relevant simplification SAP Notes themselves to get all the available information. The SAP Notes may contain more information than the Simplification List, because they may have attachments and may reference other SAP Notes. This situation is not reflected in the text of the Simplification List PDF, which is only an extract from the SAP Notes.

The simplification items are partly integrated with the pre-check and custom code migration tools. These tools provide a detailed report about where the modeling and code of your SAP Business Warehouse system does not comply with the scope and data structures of SAP BW/4HANA. However, currently the pre-check and custom code check tool do not cover all the simplification items so that you need to review the Simplification List carefully at the beginning of your conversion project to get an overview of all required tasks.

Before starting the realization phase of the conversion process, you also have to do the following preparatory activities:

1. System Requirements

You need to be aware of system requirements, start releases, conversion paths, and data volume. See the following sections for more information:

[System Requirements](#)

[What's the Impact on Your System Landscape?](#)

[Supported Start Releases](#)

[Data Volume Reduction](#)

2. Maintenance Planner

You need to run the maintenance planner tool as a first step in the conversion process. It checks your components, Add-Ons, business functions to ensure compatibility with SAP BW/4HANA and also creates the stack file used for the final conversion process (done by the Software Update Manager (SUM 2.0)). For more information, see 3.8 Maintenance Planner.

→ Note

This step is mandatory, because the SUM requires the stack file for the final conversion process.

The Maintenance Planner has replaced the Maintenance Optimizer, which is not supported by SAP BW/4HANA.

3. Pre-Checks

These checks identify important steps you need to take to make sure that your system can be converted and that your business and data warehouse processes can start running directly after the conversion process has been completed.

4. Custom Code Migration

The compatibility of custom code with SAP BW/4HANA can be checked with program RS_B4HANA_CODE_SCAN included into Transfer Cockpit. It helps to analyze embedded custom code. For more information, see 3.12 Custom Code Analysis.

→ Note

It is highly recommended to combine the SAP BW/4HANA conversion project with house-keeping activities for your existing custom code base. In particular, you need a consolidated view of productively used custom developments and you should remove custom code that is no longer used.

We recommend that you do the steps 2 to 4 in the prepare phase in the sequence listed above. It is, however, possible to do them independently or in parallel.

5. General Preparation Activities

In addition to the general preparation steps described above, you also need to do some cross-application preparations. For more information, see 3.13 General Application Preparations.

6. Object-specific Preparation Activities

In addition to the general preparations, you may also need to do some object-specific preparatory steps. These steps and their documentation are partly provided by the pre-checks and the custom code checks. For a complete overview of all necessary steps, see the Simplification List (mentioned above). For an overview of some important preparation steps, see 3.14 List of Object-Specific Preparations.

At the end of the *Prepare Phase*, you must decide, whether to take the in-place or remote conversion path.

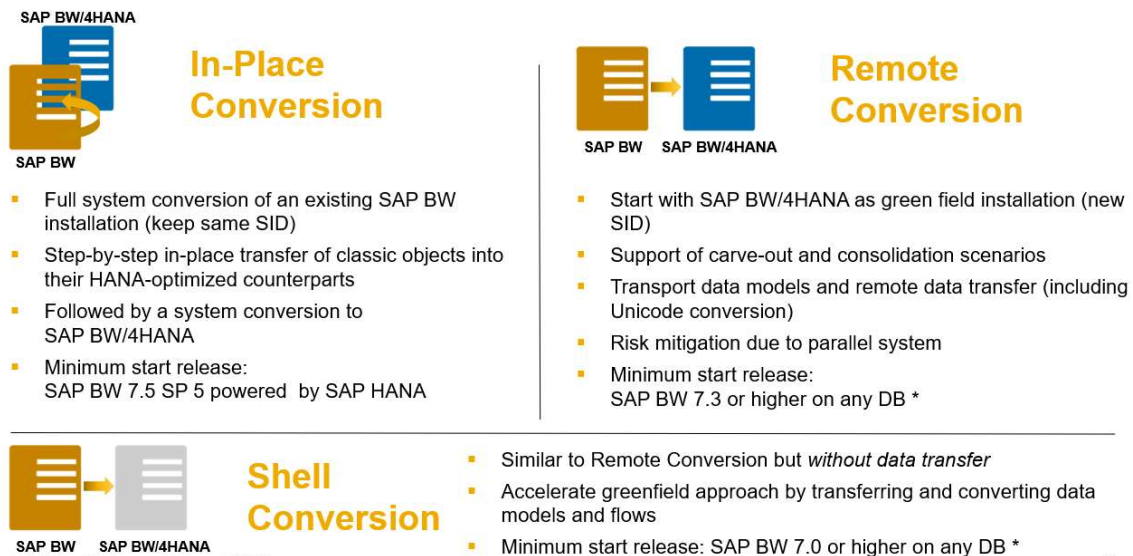
2.3.2 Realize Phase

Conversion Options

After you have done the steps of the prepare phase, you continue with the activities of the realize phase.

In general, we distinguish three options for the conversion, the so-called “In-place Conversion”, “Remote Conversion”, and “Shell Conversion”. The following picture provides an overview and comparison of these options.

SAP BW/4HANA Conversion



* Including SAP BW 7.5 and including SAP HANA

Figure 1: System Conversion Options

2.3.3 In-place Conversion

The in-place conversion starts with your SAP BW powered by SAP HANA system. The minimum release is 7.5 support package 5 (recommended support package 12)

→ Note

If your system is not running on SAP HANA or on a lower release or support package, and you decided to do an in-place conversion, then a prerequisite step for the in-place conversion is a migration to SAP HANA and a release or support package upgrade (often both can be combined). For information on the migration of SAP Business Warehouse to a SAP HANA database, refer to the [End-to-End Implementation Roadmap SAP BW powered by SAP HANA](#) (or see [SAP NetWeaver Guide Finder](#)).

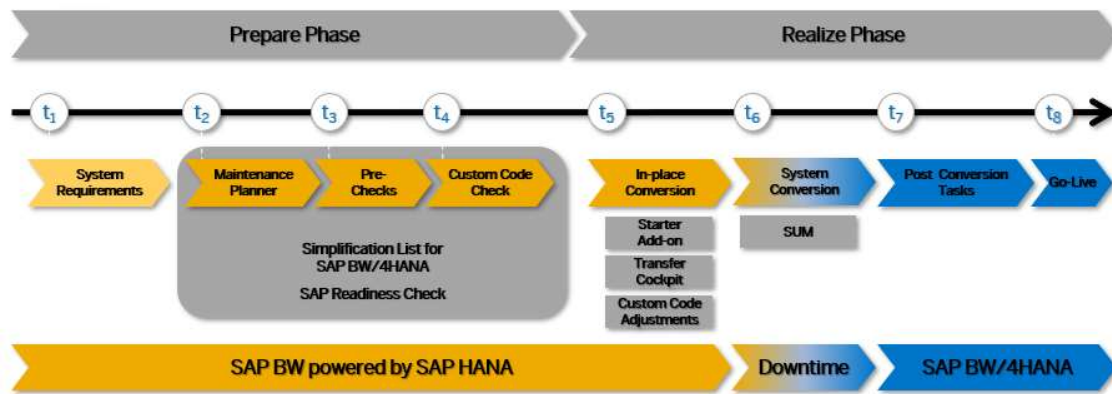


Figure 2: Basic Sequence for In-place Conversion to SAP BW/4HANA
(t_6 : point in time when SAP BW/4HANA license is required)

1. System Landscape

The system landscape for in-place conversion involves your original SAP BW system and one or more source systems. The main activities performed in the system landscape during an in-place conversion include scope transfers, which change selected objects to SAP HANA-optimized objects and might include custom code adjustments, a technical system conversion to the target SAP BW/4HANA system, and some post conversion tasks.

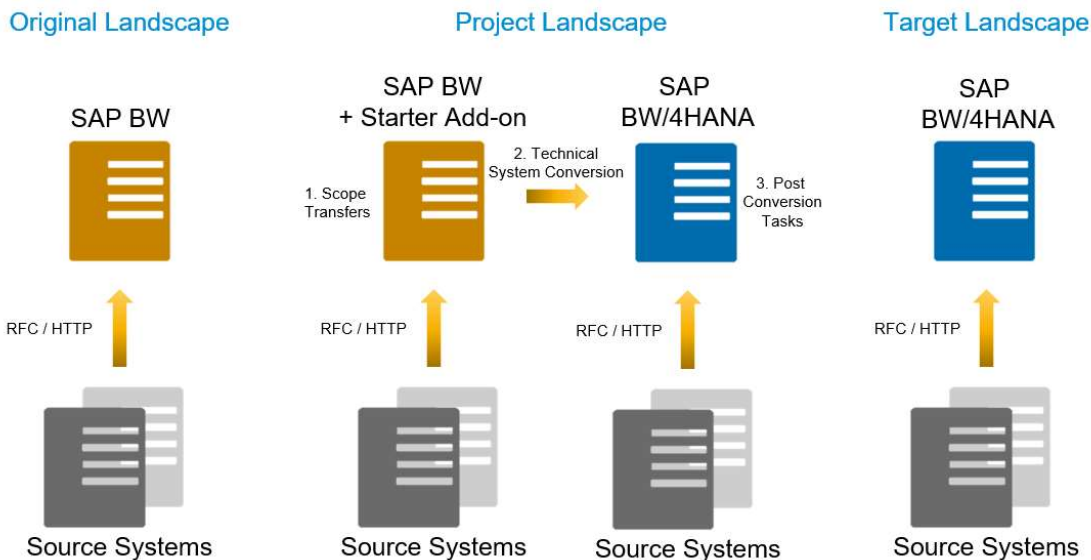


Figure 3: System Landscape for In-place Conversion

2. Starter Add-on

The first step of the in-place conversion process is to install the SAP BW/4HANA Starter Add-on. At this point it's recommended to check that the add-on is up-to-date using the SAP BW Note Analyzer, see SAP Note [2383530](#).

After the installation, the several modes are available in the SAP BW system, which define the road to SAP BW/4HANA: BW, Compatibility, B4H, and Ready for conversion mode (see 4.3 Updating System Landscape using SAP BW Note Analyzer).

To help you transition your SAP BW system from one mode to the next, the system provides a program that scans the entire system for incompatibilities and creates a to-do list for you. If to-dos are completed and “all is green”, you can switch to the next mode. It depends on your system configuration what kind of to-dos you get and how many.

3. SAP BW/4HANA Transfer Cockpit

The SAP BW/4HANA Transfer Cockpit is a collection of tools relevant for an in-place conversion. The tools are grouped by prepare and realization phases. This includes the pre-check, sizing, code scan, scope transfer, and authorization transfer tools to process objects that are not compatible with SAP BW/4HANA.

The transfer of objects is done based on given scope. A scope is a selection of data modeling and data flow objects in your system. You can use one or several objects as “start objects” to define the scope of a conversion run. For example, you can use a process chain or data flow object. The system will then collect all dependent objects to compose a consistent scope transfer run.

→ Note

The Transfer Cockpit is not able to convert legacy 3.x data flows (originating in SAP BW systems *before* release 7.0). Such 3.x data flows must be migrated to corresponding 7.x data flows before a conversion to objects compatible with SAP BW/4HANA is possible (for in-place, remote, as well as for shell conversions).

See also 3.14 List of Object-Specific Preparations.

4. Custom Code Adjustments

Adjust your custom developments as identified during the Prepare Phase or when using the code scan in the SAP BW/4HANA Transfer Cockpit.

5. System Conversion

Once the system is fully HANA-optimized and custom developments adjusted, the system can be switched to B4H mode. The system can remain in this mode until go-live. That's when downtime begins. The system will be switched to “Ready for Conversion” mode immediately followed by the technical system conversion to SAP BW/4HANA.

6. General Follow-on Activities

Some general follow-on activities are required. For more information, see General Follow-On Activities.

7. Object-specific Follow-on Activities

Some object-specific follow-on activities are required like adjusting security. For more information, see Object-specific Follow-On Activities.

2.3.4 Remote Conversion

If after the *Prepare Phase* you decide for a “Remote Conversion”, continue with the activities of the realize phase.

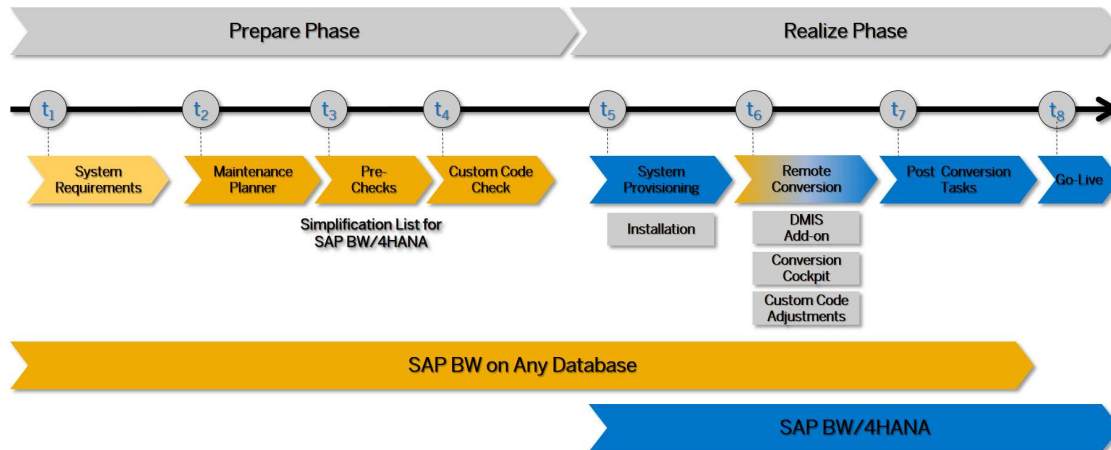


Figure 4: Basic Sequence for Remote Conversion to SAP BW/4HANA
(t5: point in time when SAP BW/4HANA license is required)

→ Note

The remote conversion approach will work for any SAP BW system with release 7.3 or higher and any database platform that your system is running on (also see Supported Releases). This includes SAP BW 7.5 and systems running on SAP HANA.

For systems with release 7.0x, you can use the shell conversion.

1. System Landscape

The system landscape for the remote conversion typically involves an original (or sender) system, a target (or receiver) system, and one or more source systems. The main activities performed in the system landscape during a remote conversion include a scope selection, a transport handling and a data transfer.

Original (Sender) System

The original system is your existing SAP BW development (DEV), quality (QA) or production (PROD) system.

Original system must be setup as a control system for SAP Landscape Transformation.

Target (Receiver) System

The target system is the SAP BW/4HANA system, where the new and optimized SAP BW/4HANA objects will reside.

The figure below shows a typical landscape and communication flow among the systems in a remote conversion for transition SAP BW/4HANA.

→ Note

For Remote and Shell Conversion the Transport and RFC connections between Original and Target Systems are required.

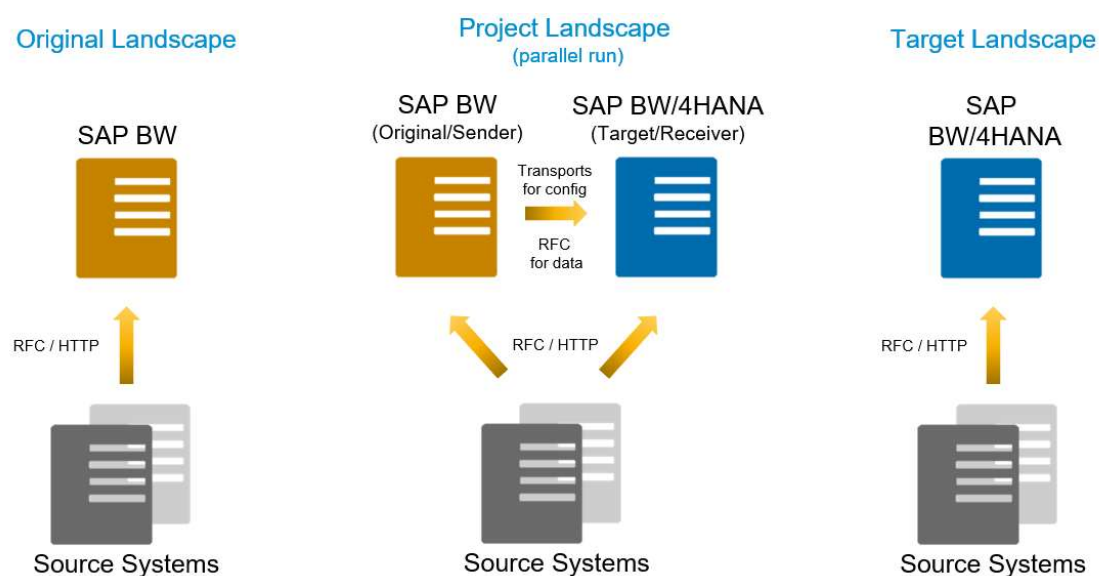


Figure 5: System Landscape for Remote Conversion

→ Note

Some tools for remote conversion might refer to Sender and Receiver Systems. However, to avoid confusion with Source Systems (which send data that is received by SAP BW), the remainder of this document will consistently refer to original and target systems. The original system being the sender and the target system being the receiver during the remote conversion.

In the original system, you start with a scope selection followed by a process to find all dependent objects like transformations, source systems, DataSources, queries, etc. All these metadata objects will then be transported to the target SAP BW/4HANA system and converted to HANA-optimized objects using transport management.

In the subsequent steps, SAP BW/4HANA Conversion Cockpit generates read reports in the original system to select relevant data from the SAP BW objects and tables and store it in the cluster tables. Once completed, data stored in cluster tables is copied/moved to the target system via an RFC connection.

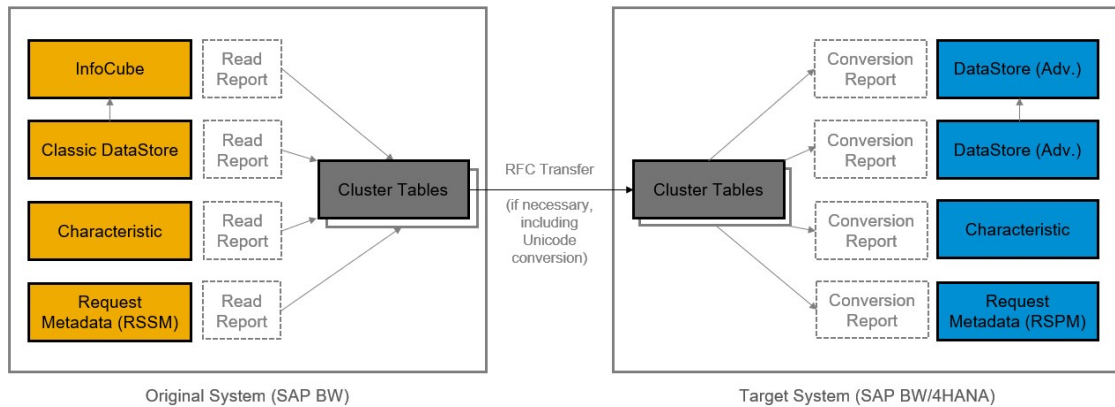


Figure 6: Example for Data Transfer Using Remote Conversion

In the target system, the Conversion Cockpit generates conversion reports to read the data from the cluster tables and move the data into correcting tables of SAP HANA-optimized objects with the required transformation. This includes, for example, the conversion of the request management from Request IDs to Request Transaction Sequence Numbers.

The Conversion Cockpit also converts and reconnects SAP Source Systems. This works very similar to the approach used for running parallel systems for migrations to SAP HANA that you might be familiar with (Post Copy Automation).

Therefore, once you complete the transfer of objects, you want to validate the results of the conversion. The overall process is low risk, since it runs in parallel with your existing SAP BW system, which remains unchanged. You can easily compare both sides.

2. System Provisioning

Install a new SAP BW/4HANA system using Software Provisioning Manager (SWPM). A task list is available that will help performing the initial system setup. This is the beginning of a parallel run of original SAP BW and new SAP BW/4HANA systems.

3. SAP Landscape Transformation (DMIS Add-on)

To transfer data models including data from the original SAP BW system to SAP BW/4HANA, install the SAP Landscape Transformation 2.0 add-on (DMIS) on both systems.

→ Note

In both the original and receiver system the same DMIS Add-On version/SP-level has to be installed, in order to avoid synchronization issues.

The license for SAP BW/4HANA **includes** the following runtime software: SAP Landscape Transformation, enterprise edition. Using the runtime software is **solely limited to the use of the conversion cockpit** in the context of a remote conversion to SAP BW/4HANA.

The runtime license **does not include the use of any other functionality** of SAP Landscape Transformation:

- SAP Landscape Transformation 2.0 is released for SAP ERP; it is not released for SAP BW or SAP BW/4HANA.
- Using SAP Landscape Transformation 2.0 for ERP systems requires the purchase of a full SAP Landscape Transformation license. Contact your sales representative in case of questions.

The license for SAP BW/4HANA **does not include** the following software:

- SAP Landscape Transformation Replication Server
- SAP Test Data Migration Server
- or any further DMIS-based functionality

4. SAP BW/4HANA Conversion Cockpit

The SAP BW/4HANA Conversion Cockpit is part of SAP Landscape Transformation (DMIS add-on) and used to process objects that are not compatible with SAP BW/4HANA. The required actions depend on the type of object and include the conversion of data from SAP BW to SAP BW/4HANA.

The tool will create transport requests to transfer metadata objects from SAP BW to SAP BW/4HANA. During the import into SAP BW/4HANA, the metadata objects will be converted. Corresponding master and transactional data are transferred as well using the Conversion Cockpit.

5. Custom Code Adjustments

Custom developments that needs to be adjusted are identified during code scan (using XREF option) and handled during the corresponding step in the SAP BW/4HANA Conversion Cockpit.

6. General Follow-on Activities

Some general follow-on activities are required. For more information, see General Follow-On Activities.

7. Object-specific Follow-on Activities

Some object-specific follow-on activities are required like adjusting security. For more information, see Object-specific Follow-On Activities.

2.3.5 Shell Conversion

If after the *Prepare Phase* you decide for a “Shell Conversion”, continue with the activities of the realize phase.

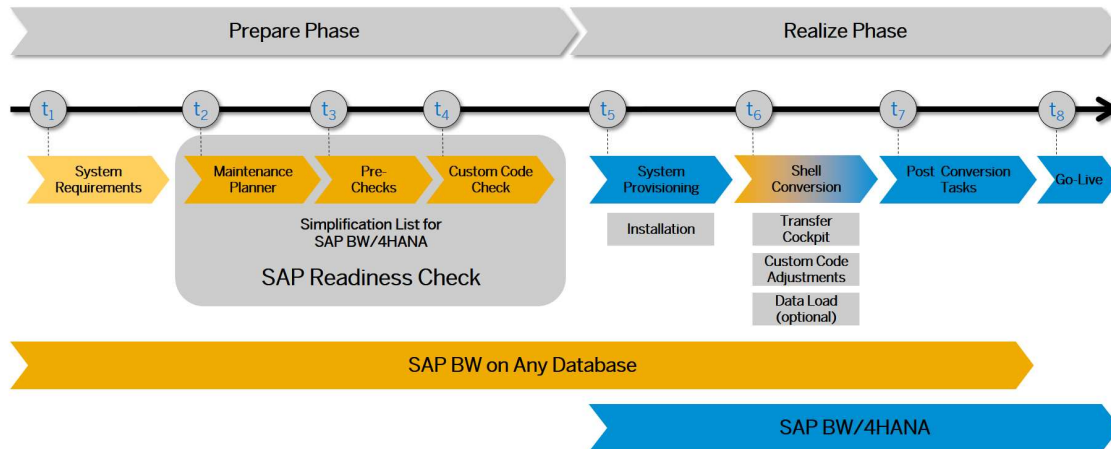


Figure 7: Basic Sequence for Shell Conversion to SAP BW/4HANA
(t₅: point in time when SAP BW/4HANA license is required)

→ Note

The shell conversion approach will work for any SAP BW system with release 7.0 or higher and any database platform that your system is running on (also see Supported Releases). This includes SAP BW 7.5 and systems running on SAP HANA.

1. System Landscape

The system landscape for the shell conversion involves an original system, a target system, and one or more source systems. The main activities performed in the system landscape during a shell conversion include a scope selection, a transport handling, and optionally the load of historical data.

Original System

The original system is your existing SAP BW development (DEV), quality (QA) or production (PROD) system.

Target System

The target system is the SAP BW/4HANA system, where the new and optimized SAP BW/4HANA objects will reside.

The figure below shows a typical landscape and communication flow among the systems in a shell conversion for transition SAP BW/4HANA.

→ Note

For Remote and Shell Conversion the Transport and RFC connections between Original and Target Systems are required.

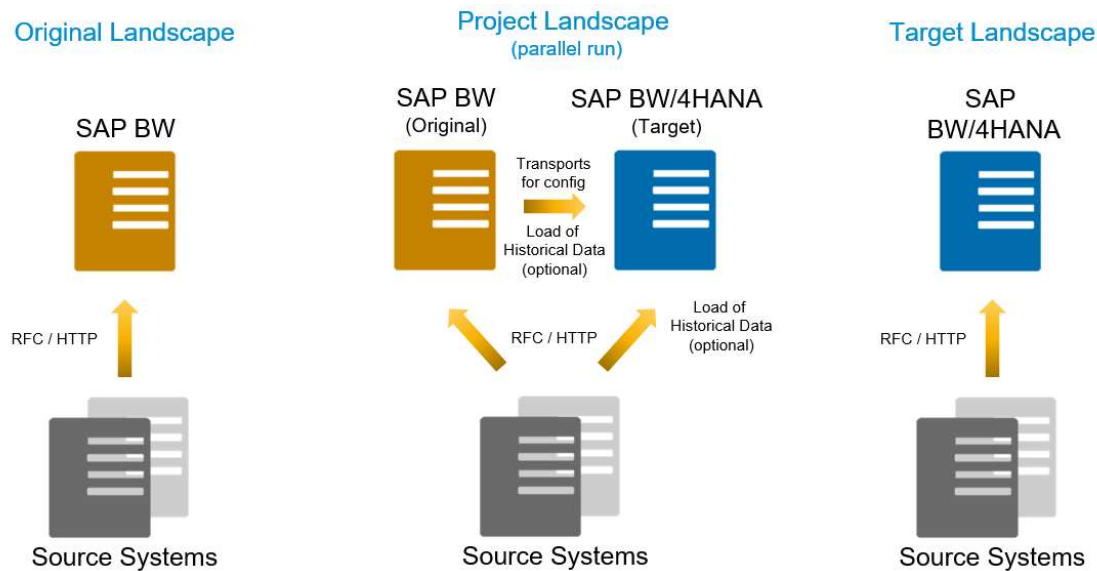


Figure 8: System Landscape for Shell Conversion

2. System Provisioning

Install a new SAP BW/4HANA system using Software Provisioning Manager (SWPM). A task list is available that will help performing the initial system setup. This is the beginning of a parallel run of original SAP BW and new SAP BW/4HANA systems.

3. SAP BW/4HANA Transfer Cockpit

The SAP BW/4HANA Transfer Cockpit is a collection of tools also relevant for a Shell Conversion. The tools are grouped by prepare and realization phases. This includes the pre-check, sizing, code scan, and scope transfer tools to process objects that are not compatible with SAP BW/4HANA.

The transfer of objects is done based on given scope. A scope is a selection of data modeling and data flow objects in your system. You can use one or several objects as "start objects" to define the scope of a conversion run. For example, you can use a process chain or data flow object. The system will then collect all dependent objects to compose a scope transfer run.

The tool will create transport requests to transfer metadata objects from SAP BW to SAP BW/4HANA. During the import into SAP BW/4HANA, the metadata objects will be converted. Neither master nor transactional data are transferred at this time.

→ Note

The Transfer Cockpit is not able to convert legacy 3.x data flows (originating in SAP BW systems *before* release 7.0). Such 3.x data flows must be migrated to corresponding 7.x data flows before a conversion to objects compatible with SAP BW/4HANA is possible (for in-place, remote, as well as for shell conversions).

See also 3.14 List of Object-Specific Preparations.

4. Custom Code Adjustments

Adjust your custom developments as identified during the Prepare Phase or when using the code scan in the SAP BW/4HANA Transfer Cockpit.

5. Data Transfer (Optional)

Using a Shell Conversion, neither master nor transactional data are transferred during a scope transfer. At your convenience, the following data transfer options exist:

- Re-load data from original sources
- Load data from original SAP BW system
- Ignore historical data and start fresh

6. General Follow-on Activities

Some general follow-on activities are required. For more information, see General Follow-On Activities.

7. Object-specific Follow-on Activities

Some object-specific follow-on activities are required like adjusting security. For more information, see Object-specific Follow-On Activities.

2.4 Required Skills and Training

Converting an SAP BW system to SAP BW/4HANA is not a simple task. We recommend the following skills:

- Advanced knowledge and expertise in SAP BW and in SAP BW/4HANA
- Good knowledge of conversion to SAP BW/4HANA (such as Simplification List, this Conversion Guide, data model changes related to the transition to SAP BW/4HANA)

An instructor-led training course “[Conversion to SAP BW/4HANA](#)” (CBW4H) is available at [SAP Training](#). The course is a two-day classroom training with hands-on exercises covering end-to-end scenarios for in-place as well as remote conversion.

3 Preparing the Conversion

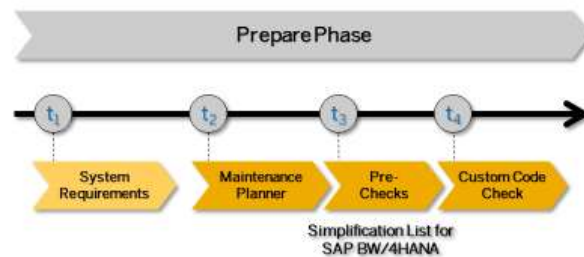


Figure 9: SAP BW/4HANA System Conversion: Prepare Phase

For the conversion to SAP BW/4HANA you have to prepare an overall project plan and schedule the tasks. The preparation activities described in this section give you an idea of what is involved. For a brief overview of the process, see Overview of Conversion Process.

3.1 System Requirements

At the beginning, basic prerequisites for doing a system conversion from SAP BW to SAP BW/4HANA need to be checked.

SAP Note [2347382](#) describes general information about and prerequisites for SAP BW/4HANA. SAP Note [2383530](#) contains systematic instructions, on how to prepare your system for a conversion.

→ Tip

To perform a general check of your SAP BW system, we recommend to use the SAP BW Checklist Tool for SAP HANA (see SAP Note [1729988](#)), which is part of the SAP BW Migration Cockpit (see SAP Note [1909597](#)). The checklist tool automates the check of best practice guidelines for operations and prerequisites for conversion of an existing SAP BW deployment to SAP BW/4HANA. Run the Checklist Tool and select "SAP BW/4HANA" as a target.

For more details, see "[Tools from SAP BW/4HANA Product Management](#)".

Unicode

As a prerequisite for an in-place conversion, your system needs to be a Unicode system. If your system is still non-Unicode, you can follow a two-step conversion approach: First, perform a combined upgrade and Unicode conversion with one of the supported start-releases as target, then perform the conversion to SAP BW/4HANA.

For additional information, see Unicode Conversion Overview.

Release

As a prerequisite for an in-place conversion, your system needs to be on SAP BW release 7.5 support package 5 or higher. If necessary, perform a release upgrade or support package update.

Database Platform

As a prerequisite for an in-place conversion, your system needs to be running on the SAP HANA platform. If necessary, perform a database migration to SAP HANA.

Application Server ABAP Only (Dual-Stack Split)

Your system has to be an AS ABAP-only system. Dual-stack systems (AS ABAP and AS Java combined in one system) are not supported for the conversion. If your system is as dual-stack system, you have to split it before doing an in-place conversion.

For additional information on how to perform a dual-stack split, see:

- SAP Note [1655335](#)
- Guides at support.sap.com/sltoolset
 - System Provisioning Split Option Guide for Systems based on SAP NetWeaver 7.1 and Higher
 - Dual Stack Split

3.2 What's the Impact on Your System Landscape?

When you convert your system to SAP BW/4HANA, you may have to adapt further systems or components in your system landscape.

Application Servers

If you want to re-use your application server(s) with SAP BW/4HANA, they must be compatible. This can require an update to operating system and/or SAP Kernel. For details, see the [Product Availability Matrix](#) for SAP BW/4HANA.

SAP BI Java Components

SAP BI Java components are obsolete with SAP BW/4HANA. You have to remove the technical Java system from the respective productive system in the Landscape Management Database (LMDB).

Note:

- Support for **temporary use** of the existing SAP BEx Web Applications (SAP BI Java) in SAP BW/4HANA through a dedicated **pilot program**
- Exclusively available with the In-Place Conversion to SAP BW/4HANA 1.0 SP 6 or higher and (supported for a limited time)

- For more details, see SAP Note [2496706](#)

SAP Fiori Front-End Server and SAP UI

SAP BW/4HANA is installed together with SAP UI 7.5 component. If SAP Fiori or SAP UI (SAPUI5) are already used in conjunction with your SAP BW system, review SAP Note [2217489](#) “Maintenance and Update Strategy for SAP UI (SAPUI5) in SAP Fiori Front-End Server” for an eventual impact on your UI applications.

It is recommended to use a stand-alone SAP Fiori front-end server for easy integration of other SAP solutions like SAP S/4HANA.

SAP Analytic Cloud

After the system conversion to SAP BW/4HANA, check for and implement any missing program corrections using SAP BW Note Analyzer (see SAP Note [2541557](#)).

SAP BusinessObjects BI Platform

BI Platform is certified only for certain releases and support packages (of the platform) and has a minimum support package level of SAP BW/4HANA 1.0. For details, see the [Product Availability Matrix](#) under Essential Information, section “SAP BW support by product”.

Minimum release is SAP BusinessObjects BI Platform 4.1 or higher. Release 4.0 is not supported.

3.3 Supported Releases for Original System

For an in-place conversion, the original SAP BW system needs to have a minimum release level. The following start releases are supported:

- SAP Business Warehouse 7.5 powered by SAP HANA support package 5 or higher (recommended support package 12 or higher)

For a remote conversion, the original SAP BW system needs to have a minimum release level. The following start releases are supported:

- SAP Business Warehouse 7.3
- SAP Enhancement Package 1 for Business Warehouse 7.3
- SAP Business Warehouse 7.4
- SAP Business Warehouse 7.5

For a shell conversion, the original SAP BW system needs to have a minimum release level. The following start releases are supported:

- SAP Business Warehouse 7.0
- SAP Enhancement Package 1 for Business Warehouse 7.0
- SAP Enhancement Package 2 for Business Warehouse 7.0

- SAP Business Warehouse 7.3
- SAP Enhancement Package 1 for Business Warehouse 7.3
- SAP Business Warehouse 7.4
- SAP Business Warehouse 7.5

→ Caution

Currently, conversion of SAP BW based on SAP NetWeaver **7.51** or higher is **not** supported! Therefore, we strongly recommend **not** to upgrade to these releases.

Conversion of SAP BW based on SAP NetWeaver 7.50 SP16 or higher is supported to SAP BW/4HANA 2.0 (SP02 or higher) only.

Remote and shell conversions are independent of the database platform of your existing system (i.e. all supported database platforms are allowed; see **Product Availability Matrix**).

See the following table for minimum and recommended support package level:

Scenario	Release	Minimum Support Package	Recommended Support Package
Pre-Checks			
SAP BW	7.0	25	25 or higher
SAP BW	7.0 EhP 1	9	9 or higher
SAP BW	7.0 EhP 2	7	7 or higher
SAP BW	7.3	8	8 or higher
SAP BW	7.3 EhP 1	5	5 or higher
SAP BW	7.4	9	9 or higher
SAP BW	7.5	5	5 or higher
In-place Conversion			
SAP BW on SAP HANA (target SAP BW/4HANA 1.0)	7.5	5	9 or higher
SAP BW on SAP HANA (target SAP BW/4HANA 2.0)	7.5	5	12 or higher
SAP BW on SAP HANA (target SAP BW/4HANA 2021)	7.5	5	12 or higher
Remote Conversion – Original System			
SAP BW	7.3	10	10 or higher
SAP BW	7.3 EhP 1	10	10 or higher
SAP BW	7.4	9	12 or higher
SAP BW	7.5	5	5 or higher
Shell Conversion – Original System			
SAP BW	7.0	25	28 or higher
SAP BW	7.0 EhP 1	9	12 or higher
SAP BW	7.0 EhP 2	7	10 or higher
SAP BW	7.3	10	10 or higher

SAP BW	7.3 EhP 1	10	10 or higher
SAP BW	7.4	9	12 or higher
SAP BW	7.5	5	5 or higher

If your system is below the minimum level, you will not be able to install or run a given scenario. The further away your system is from the recommended level, the more SAP Notes must be implemented to prepare the system for a scenario.

→ Recommendation

To reduce manual effort and the number of SAP Notes to be implemented, deploy the *latest* available support package stack.

3.4 Supported Releases for Target System

SAP BW/4HANA 2021 exclusively runs on SAP HANA 2.0. The minimum support package is given in the following table.

Scenario	Release	Minimum Support Package	Recommended Support Package
SAP HANA	2.0	SPS05 Revision 56	

→ Tip

For in-place conversions, keep the update paths for SAP HANA maintenance revisions in mind (see SAP Note [1948334](#)).

There are minimum requirements for SAP BW/4HANA when planning a system conversion:

Scenario	Release	Minimum Support Package	Recommended Support Package
In-place Conversion – After System Conversion			
SAP BW/4HANA	1.0	4	12 or higher
SAP BW/4HANA ¹	2.0	2	
SAP BW/4HANA ²	2021	0	
Remote Conversion – Target System			
SAP BW/4HANA	1.0	9	12 or higher
SAP BW/4HANA	2.0	2	
SAP BW/4HANA	2021	0	
SAP Landscape Transformation add-on ³	2.0	14	16 or higher
Shell Conversion – Target System			
SAP BW/4HANA	1.0	4	12 or higher
SAP BW/4HANA	2.0	2	
SAP BW/4HANA	2021	0	

→ Important

For in-place conversions, the target release and support package stack must also meet the minimum equivalent support package depending on the current support package level of the SAP BW 7.5 system (see SAP Note [2347382](#)).

3.5 Supported Source Systems

3.5.1 SAP Source Systems – Minimum Release Requirements

There are minimum release requirements for all connected SAP source systems that should be connected to SAP BW/4HANA (or transitioned from SAP BW to SAP BW/4HANA). These requirements are based on the availability of the Operational Data Provisioning framework (ODP) for SAP systems.

The following SAP Business Suite applications are supported:

- SAP ECC / ERP 6.0 or higher
- SAP Customer Relationship Management (SAP CRM) 5.0 or higher

¹ Direct conversion to SAP BW/4HANA 2021 will be supported with SAP BW/4HANA 2021 SP00.

² Direct conversion to SAP BW/4HANA 2021 will be supported with SAP BW/4HANA 2021 SP00.

³ The technical component for SAP BW is DMIS 2011_1_7xx. For SAP BW/4HANA it is DMIS 2011_1_731. For latest information on SAP LT requirements, see SAP Note [2513088](#).

- SAP Supply Chain Management (SAP SCM) 5.0 or higher

For SAP Business Suite applications, the following SAP NetWeaver support package is required:

Scenario	Release	Minimum Support Package	Recommended Support Package
SAP Source System			
SAP NetWeaver	7.0	14	Latest
SAP NetWeaver	7.0 EhP 1	0	Latest
SAP NetWeaver	7.0 EhP 2	0	Latest
SAP NetWeaver	7.1	19	Latest
SAP NetWeaver	7.1 EhP 1	13	Latest
SAP NetWeaver	7.3	1	Latest
SAP NetWeaver	7.3 EhP 1	1	Latest
SAP NetWeaver	7.4	5	Latest
SAP NetWeaver	7.5 or higher	0	Latest

The following SAP Business Warehouse systems are supported:

- SAP BW 7.0 or higher

For SAP Business Warehouse systems, the following SAP NetWeaver support package is required:

Scenario	Release	Minimum Support Package	Recommended Support Package
BW Source System			
SAP BW	7.0	17	Latest
SAP BW	7.0 EhP 1	2	Latest
SAP BW	7.0 EhP 2	1	Latest
SAP BW	7.1	Not supported	
SAP BW	7.1 EhP 1	2	Latest
SAP BW	7.2	Not supported	
SAP BW	7.3	3	Latest
SAP BW	7.3 EhP 1	4	Latest
SAP BW	7.4	2	Latest
SAP BW	7.5 or higher	0	Latest

→ Recommendation

To reduce manual effort and the number of SAP Notes to be implemented, deploy the *latest* available support package stack.

3.5.2 SAP Source Systems – Readiness for Operational Data Provisioning

Integration of SAP BW/4HANA with SAP NetWeaver systems, like SAP Business Suite, SAP S/4HANA, or SAP BW, is based on Operational Data Provisioning (ODP). It is therefore mandatory to ensure ODP readiness of all connected SAP and BW systems (inbound as well as outbound).

The "ODP Data Replication API 2.0" is used for the internal connection of SAP BW/4HANA or SAP BW release 7.3 or higher, SAP BusinessObjects Data Services 4.2 and SAP HANA Smart Data Integration (ABAP Adapter) to different data provider types such as Data-Sources/Extractors (ODP-SAPI Context), ABAP CDS Views (ODP-CDS Context) or InfoProviders of a SAP BW/4HANA or SAP BW release 7.4 or higher. (ODP-BW Context).

The "ODP Data Replication API 2.0" is a functional enhancement to the first version of this interface released and the recommended API for source systems. For availability and limitations of ODP and further details, see SAP Note [2473145](#) and [2481315](#) as well as the [Operational Data Provisioning FAQ](#).

The complete "ODP Data Replication API 2.0" is available with the following support packages:

Scenario	Release	Minimum Support Package	Recommended Support Package
SAP Source System			
SAP NetWeaver	7.3	8	14 or higher
SAP NetWeaver	7.3 EhP 1	5	16 or higher
SAP NetWeaver	7.4	2	11 or higher
SAP NetWeaver	7.5	0	0 or higher
SAP BW/4HANA	1.0	0	0 or higher

For more details see SAP Note [1931427](#). In case of lower releases, ODP API 1.0 can be used, see SAP Note [1521883](#)s.

Furthermore, to allow usage of Service-API based DataSources (so called "extractors") as well as customer-defined generic DataSources with SAP BW/4HANA, such DataSources must be released for ODP (see SAP Note [2232584](#)).

3.5.3 Other Source Systems

Systems that are not based on SAP ABAP application server (i.e. non-SAP systems) and used as a source for SAP BW/4HANA must be compatible with SAP HANA smart data access and/or smart data integration (depending on usage scenario).

If necessary, the corresponding data provisioning adapters for SAP HANA must be installed on the source systems. For more information, see SAP Note [2447932](#).

3.6 Data Volume Reduction

SAP Data Volume Management is designed to reduce the data footprint so that you can achieve a shorter conversion duration due to reduced load size. Data Volume Management (DVM) offers various capabilities supporting the pre- and post-conversion phases. One central tool is the SAP DVM Work Center in SAP Solution Manager, including tools with a special focus on SAP HANA.

- Guided Self Service: You can generate a best practice document to determine data that can be reduced most efficiently in an SAP system before the conversion. You can use the same tool after the conversion to develop a blueprint for a DVM strategy.
- Reorganization and Compression: You can use this tool without an SAP HANA context in order to simulate the savings gained by reorganizing tables or databases or compressing the database.
- In addition, you can simulate the future system size of your system. This is useful for a forecast of the impact any planned measures may cause.

Beside the DVM Work Center, Data Volume Management offers services to give you an overview of your data distribution and quality as well as services to help you to develop a DVM road map for your system landscape. All services allow you to make flexible decision about your content and data volume management.

Additional Information

For more information, see the SAP Help Portal at help.sap.com/solutionmanager → SAP Solution Manager <release> → Application Help → SAP Library → Application Operations.

For general information about Information Lifecycle Management, see [SAP.com](https://sap.com). For Data Volume Management, see the SAP Community Network at wiki.scn.sap.com/wiki/display/TechOps/Data+Volume+Management.

3.7 Sizing Check

It's essential to properly size your new SAP BW/4HANA system. Sizing is performed using program, which is available via SAP Note [2296290](#). This SAP Note and its attachment contain more information about sizing.

→ Note

Even if your SAP BW system is already running on SAP HANA, it is strongly recommended to run the sizing report. For example, when transferring InfoCubes to DataStore objects (advanced), the advanced DataStore object will require more memory than the original InfoCube. This is considered by the sizing report when using the option “**Target SAP BW/4HANA**”.

Such increases in memory consumption can in most cases be reclaimed or avoided by reducing layers of your data warehouse.

1. Start the Transfer Cockpit (transaction RSB4HCONV).
2. Select “Run Sizing Report”⁴.
3. Turn **on** option “Target Release SAP BW/4HANA”:

Determine DB size relevant for BW /4HANA Sizing

General

Store output in file ☒ File name: HANA_Sizing.txt

Number of parallel procs: 4

Unload inactive tables ☒

Compliant with note 2502280 ☐

Target Release BW/4HANA ☒

Precision

High ☐

Medium ☐

Low ☒

Scenario / Subset Selection

Use system subset only ☐

List of top level InfoProv. [] to []

Subset for existing BW system ☐

New BW system using this subset ☒

Exclude listed objects ☐

Future Growth Simulation

Consider Growth ☐

Number of years: 3

Relative growth (in %) ☒

Absolute growth (in GB) ☐

Growth value: []

4. Schedule the tool using Program → Execute in Background.

3.8 Maintenance Planner

You must use the Maintenance Planner to do the technical system conversion to SAP BW/4HANA. Based on the Maintenance Planner, which is recommended to run in an early phase of the SAP BW/4HANA system conversion project, the following items are checked, if they are supported for the conversion:

- Any **Add-Ons** to your system⁵
- Any active **Business Functions** in your system⁶

If there is no valid conversion path for any of the items listed above (for example, an add-on is not released for the conversion yet), the Maintenance Planner prevents the conversion. After the check, the Maintenance Planner generates the download files (add-ons, packages, DBDs, etc.) and creates the stack configuration file (stack.xml), which is used to convert the system to SAP BW/4HANA.

⁴ Program /SDF/HANA_BW_SIZING

⁵ For a list of supported add-ons, see SAP Note [2189708](#).

⁶ In the current version, no Business Functions are checked.

For an in-place conversion, you need to download the SAP BW/4HANA Starter Add-on as well as the software components for doing the technical system conversion to SAP BW/4HANA.

For a remote or shell conversion, you need to download the initial installation package for SAP BW/4HANA (but you don't need the SAP BW/4HANA Starter Add-on). Remote conversion also requires the SAP Landscape Transformation package. It's recommended to include the latest support packages with the initial installation as well.

For more information, see the Maintenance Planner User Guide at help.sap.com/maintenanceplanner.

3.9 System Installation and Preparations

In general, several activities are required to prepare your landscape for a conversion to SAP BW/4HANA. The following chapters provide an overview. Details are described in the appendix (see 7.1 Landscape Preparation).

3.9.1 Original System

For all conversion options, update your SAP BW system using SAP BW Note Analyzer (see instructions given in SAP Note [2383530](#)),

Remote conversion also requires installation of the SAP Landscape Transformation add-on.

→ Caution

If your source system is **SAP BW on HANA**, check according the Note [1908075](#) that the Table Placement is set.

3.9.2 Target System

For remote and shell conversions, a new SAP BW/4HANA system must be installed followed by an initial system configuration, and prepared using the following steps:

Installation

The installation is planned using [Maintenance Planner](#) and performed using [Software Provisioning Manager](#).

SAP Note [2568783](#) - Release Note for Software Provisioning Manager 2.0

1. Install SAP HANA 2.0 database
2. Install SAP BW/4HANA using the Software Provisioning Manager. For details, see [SAP Help Portal](#).

3. If you want to perform a remote conversion, also install the SAP Landscape Transformation add-on (see below)⁷.
4. Update the system using SAP BW Note Analyzer (see instructions given in SAP Note [2383530](#)).

→ Caution

In the target SAP BW/4HANA system, check according the Note [2334091](#) that the Table Placement is set.

Configuring the SAP BW/4HANA Cockpit / Launchpad

Detailed information can be find in [SAP Help Portal](#).

1. Run transaction STC01.
2. Select Task List "SAP_FIORI_LAUNCHPAD_INIT_SETUP".
3. Generate a Task List Run (press F8).
4. Execute the complete task list in background

Initial System Configuration

The initial system configuration of SAP BW/4HANA is performed using a task list.

1. Start the Task List Framework (transaction STC01).
2. Select Task List "SAP_BW4_SETUP_SIMPLE".
3. Generate a Task List Run (press F8).

Maintain Task List Run SAP_BW4_SETUP_SIMPLE_20171206165110113									
Task List: SAP_BW4_SETUP_SIMPLE Simple BW/4HANA Setup									
Task List Run: SAP_BW4_SETUP_SIMPLE_20171206165110113									
E	C	S	L	Phase	Comp.	Task Description	H	P	Parameter
✓	○	○	○	Configuration BW4		Confirm reading of note 2362807 - HANA Privileges for BW/4HANA			
✓	○	○	○	Configuration BW4		Define and Assign Logical System for BW Client using current client			
✓	○	○	○	Configuration BW4		Create background user in BW - BWREMOTE			
✓	○	○	○	Configuration BW4		Set/Check BW Client			
✓	○	○	○	Configuration BW4		Set BW/4HANA Operating Scope			
✓	○	○	○	Configuration BW4		Check/Generate OBL_ALL Authorisation Object			
✓	○	○	○	Configuration BW4		Check/Generate Packages for BW ODATA Services			
✓	○	○	○	Configuration BW4		Configure Metadata Search for Indexing			
✓	○	○	○	Configuration DBIC		Create SAP DB Connection (DBCO)			
✓	○	○	○	Configuration BW4		Activate BW/4 Web Services			
✓	○	○	○	Cleanup BW4		Schedule OLAP cache cleanup			
✓	○	○	○	Cleanup BW4		Schedule deletion of BW messages/parameters			
✓	○	○	○	Configuration BW4		Schedule Writing of Application Logs to DB			
✓	○	○	○	Cleanup BW4		Schedule DTP cleanup job			
✓	○	○	○	Configuration BW4		Schedule Monitor Assistant			
✓	○	○	○	Configuration BW4		Check Masterdata Read Classes			
✓	○	○	○	Configuration BW4		Set BW4CORE to active			
✓	○	○	○	Configuration BW4		Maintain Allowed Characters in BI			
✓	○	○	○	Configuration BW4		Create RFC Destination for After-Import handling of client dependent BW objects (RSTPRFC)			
✓	○	○	○	Configuration BW4		Maintain Query Executor settings for Eclipse Query Designer and/or Workspace Query Designer			
✓	○	○	○	Initialization		Report RSDG_JOB1_JOB1_MIGRATE_AS_TASK - Simplified Migration Report as task Migrate jobs to folder			
✓	○	○	○	Initialization		Report RSADMIN_TO_IMG - XPRA - Transferred Selected RSADMIN Parameter into Customizing			
✓	○	○	○	Initialization		Report RSDDTREXADMIN_TO_RSVSPUCST - XPRA - Transfer BW Workspace rsdtdtrexadmin settings into SPRO			

⁷ Both the Original and Target system should have the same DMIS-AddOn Version/Support Package level.

→ Note

Some tasks are skipped as a default setting. Consult the documentation assigned to the task to see if it's relevant for your deployment.

4. Maintain any required tasks parameters (yellow icon).
5. Execute the task list.

3.9.3 Application Servers

The target SAP BW/4HANA system might need updates to your application servers. Check the Product Availability Matrix for supported application server platforms and SAP Kernel releases.

3.9.4 Source Systems

SAP Source Systems

SAP Source Systems - including SAP BW systems that you want to use as a source for SAP BW/4HANA – must be compatible with Operational Data Provisioning (ODP, see SAP Note [2473145](#)). Also, all DataSources must be released for ODP.

1. Verify that all required source systems are compatible with ODP in general (see chapter 3.5 Supported Source Systems).
2. Update the ODP functionality in all source systems using SAP BW Note Analyzer (see instructions given in SAP Note [2383530](#)).
3. Release all required SAP DataSources for ODP (see SAP Note [2232584](#)).
4. Release generic DataSources for ODP (see SAP Note [2350464](#)).

Non-SAP Source Systems

Non-SAP system that you want to use as a source for SAP BW/4HANA must be compatible with SAP HANA smart data access and/or smart data integration (depending on usage scenario).

1. Verify that all required source systems are compatible with SAP HANA (see SAP Note [2447932](#)).
2. Check that the necessary data provisioning adapters are available and installed in SAP HANA.

3.10 Scope Identification and Check

The conversion from SAP BW to SAP BW/4HANA does not happen in one go. It is rather performed in several sprints. Each sprint is based on a selection of a specific scope, a set of SAP BW objects, for example a data flow, that can be converted together in a consistent way. The combination of all scope selections (sprints) defines what configuration will be transitioned to SAP BW/4HANA.

For In-place Conversion, any SAP BW object *not* in scope – typically objects that are not used anymore or have become obsolete – must be removed from the system (manually or using a tool) before the final system conversion step to SAP BW/4HANA will be possible.

For Remote and Shell Conversions, SAP BW objects that are not used anymore can simply be ignored. You just identify the scope based on what objects are required for your new SAP BW/4HANA system.

Procedure

1. Start the Task Manager (transaction STC01).
2. Select one of the following task lists corresponding to your conversion path:

Task List	Description
SAP_BW4_TRANSFER_CHECK_INPLACE	Collect and Check BW objects whether they are compatible to SAP BW/4HANA for in-place conversion
SAP_BW4_TRANSFER_CHECK_REMOTE	Collect and Check BW objects whether they are compatible to SAP BW/4HANA for remote conversion
SAP_BW4_TRANSFER_CHECK_SHELL	Collect and Check BW objects whether they are compatible to SAP BW/4HANA for shell conversion

3. Run the task list.
4. Select the scope of objects you want to check. You have to define at least one start object. The system will then collect all dependent objects.
5. The second task will then display a table of all objects with compatibility status and recommended conversion steps (if necessary). This allows you to get a good overview of the required conversion scope and potential incompatibilities that need to be resolved before a scope transfer can be successful.

3.11 Pre-Checks

3.11.1 Pre-Check Overview

SAP supports your conversion project by providing pre-checks that identify some important steps you need to take to ensure your system is compatible with the conversion process.

Perform these checks before starting the realization phase, in order to have enough time to solve any issues before starting the conversion processes.

Pre-checks are shipped to customers that want to convert to SAP BW/4HANA in the form of SAP Notes. Customers can use these pre-checks to find out what mandatory steps they

must carry out before converting to SAP BW/4HANA. The results list the instances that need to be addressed before attempting the conversion process.

→ Note

If you just want to check your SAP BW system, then the SAP BW/4HANA Starter Add-on is not required (it can't be installed on release 7.4 or lower anyway). However, the SAP BW/4HANA Starter Add-on will be required to change the operating mode or use the Transfer Cockpit.

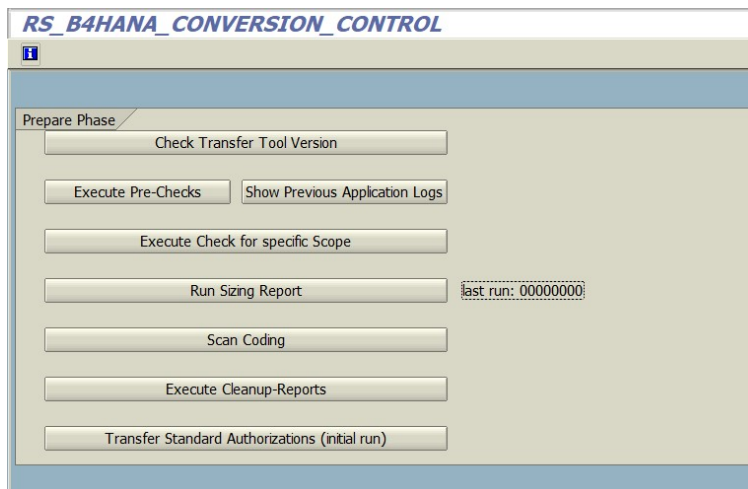
3.11.2 Installing Pre-Checks

Follow the instructions provided in SAP Note [2383530](#) and use the SAP BW Note Analyzer to install the pre-check tools (see Appendix Landscape Preparation for more details). Make sure to use latest version of this SAP Note and regularly check for updates of the attached XML files. Implement and run the SAP BW Note Analyzer in your development system and transport the recorded changes to the other systems in your landscape (quality assurance, consolidation, production). Then run the SAP BW Note Analyzer again in the other systems to validate that all changes are applied correctly.

After the installation, you can also check if the tools are up-to-date directly in the SAP BW/4HANA Transfer Cockpit.

Procedure

1. Start the Transfer Cockpit (transaction RSB4HCONV).
2. Select "Check Transfer Tool Revision":



3. The system will download SAP Note [2654307](#) and compare it to the installed revision of the transfer tools. A popup message will be shown, should a newer version be available.

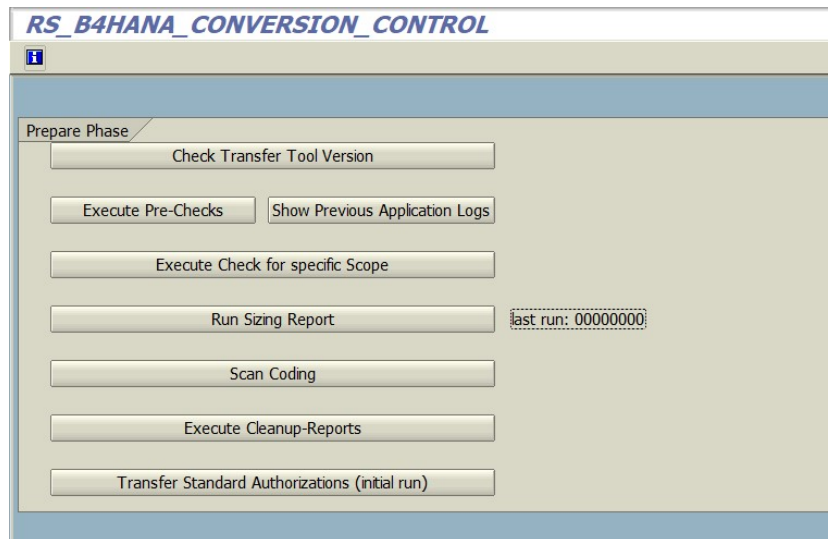
3.11.3 Performing Pre-Checks

Prerequisites

You have installed the pre-checks in your SAP BW system. You need authorization for authorization objects S_RS_B4H.

Procedure

1. Start the Transfer Cockpit (transaction RSB4HCONV).
2. Select “Execute Pre-Check”⁸:



3. Select “Execute in Batch” and turn on the option to collect statistics (online execution will work for small to medium size systems).



The pre-check program determines which objects are compatible with SAP BW/4HANA and which objects are not available in SAP BW/4HANA and can be automatically converted, deleted, or need manual adjustments. The pre-check then provides links to the documentation of the corresponding Simplification Items (i.e. the matching SAP Notes).

Pre-Check Messages and Their Meanings

After the job for the pre-check program has been finished the job log can be analyzed. The result of the Pre-Check can be verified, selecting the potential conversion type.

⁸ Program RS_B4HANA_CONVERSION_CONTROL



The result can be personalized, using several options

Pre-check Findings	
All Results	12929
1 - Before Transfer Tool	6003
2 - Before and After Transfer Tool	2
3 - During Transfer Tool	2223
4 - Before B4/H Mode	2102
5 - B4/H TaskList	150
6 - Before Ready4Conversion	20
7 - Ready4Conversion TaskList	2328
Not defined	101

Sorting possibilities:

- Handling phase
- TLOGO
- InfoArea
- Finding

Per TLOGO-object the number of objects involved and required actions are listed:

Pre-check Findings	
All Results	12929
1 - Before Transfer Tool	6003
2 - Before and After Transfer Tool	2
3 - During Transfer Tool	2223
CUBE (InfoCube)	88
DTPA (Data Transfer Process)	896
ELEM (Query Element)	91
ISET (InfoSet)	3
ISIP (InfoPackage)	397
MPRO (MultiProvider)	51
ODSO (DataStore Object (classic))	309
RSDS (DataSource)	73
RSPV (Process Variants)	315

TLOGO	Object Name	Check Message	Note	Processed at
ODSO	0PERS_VR1	Transfer into DataStore (advanced)	2451013	3 - During Transfer Tool
ODSO	C_CHNLOG	Transfer into DataStore (advanced)	2451013	3 - During Transfer Tool
ODSO	0RSTT_001	Transfer into DataStore (advanced)	2451013	3 - During Transfer Tool
ODSO	0RSTT_002	Transfer into DataStore (advanced)	2451013	3 - During Transfer Tool
ODSO	0RSTT_003	Transfer into DataStore (advanced)	2451013	3 - During Transfer Tool
ODSO	0RSTT_010	Transfer into DataStore (advanced)	2451013	3 - During Transfer Tool

The messages in the result of the Readiness Check refer to SAP notes. These notes explain the reason why objects are listed here and how to deal with it. Also have a look at the [Simplification List](#).

→ Tip

DataStore objects (advanced) or Open Hub Destinations might appear in the pre-check log although both object types are available in SAP BW/4HANA. In such case, DataStore objects (advanced) are still using the old request management and must be processed by the Scope Transfer Tool. For Open Hub Destinations, the recommendation is to delete the contents for the target table (in certain cases this might be mandatory).

For details, see the corresponding SAP Notes [2487023](#) and [2469516](#).

→ Tip

Evaluate all BW objects to determine if they are used productively. Removing obsolete BW objects from the system will decrease the time needed to analyze objects for compatibility with SAP BW/4HANA and reduce the effort needed to convert them.

For example, you can use the SAP BW Checklist Tool to identify BW Queries that have not been used in previous quarter or year (see SAP Note [1729988](#)).

3.12 Custom Code Analysis

To support you in detecting custom code that needs to be adapted for the move to SAP BW/4HANA, SAP is providing a Code Scan Tool as part of the SAP BW/4HANA Transfer Cockpit (see also chapter 4.6 Custom Code Adjustments). For example, you can verify, if custom code embedded in transformations will be compatible with the SAP BW/4HANA data structures and scope. For more information, see details related to custom code within SAP Documentation: [SAP Help](#) and in SAP Note [2462639](#).

→ Tip

Perform a custom code evaluation to determine which custom code is used productively and identify unused objects. Retire and removing obsolete custom code from the system can reduce the custom code that needs to be analyzed and potentially adjusted.

1. Start the Transfer Cockpit (transaction RSB4HCONV).
2. Select “Scan Coding”⁹:

⁹ Program RS_B4HANA_CODE_SCAN

BW/4 Starter-Addon: Code Scan

Scope Selection

☐ All blacklisted BW Objects
☐ Technical Content Only
☐ Specific BW Object
☒ All Blacklisted ABAP Objects

Add BW Object to scope Display Selected Object(s)

Select Execution Mode

Staging Objects

☐ Check DTP Filter Routines
☐ Check InfoPackages
☐ Check Transformations
☐ Check Transfer Rules
☐ Check Update Rules

☐ Check Other ABAP Routines
☐ Check Enhancements (Exit/BAdI)
☐ Other Code Locations (InfoCube, characteristic, hierarchy, DataSource, ...)
☐ Check 7.x Integrated Planning
☐ Check 3.x Business Planning
☐ Check Analysis Processes
☐ Customer-Defined Reports/Function Modules

Restrictions

☐ Only if contained in Process Chain (staging object)
Restrict to Package
Restrict to User
☐ Display/Save All Messages Including Green Ones

Further Settings

☐ Write XREF Entries (Remote Conversion)

Logs

Display Logs

- If you are performing a remote or shell conversion, then you have to run the code scan with option "Write XREF Entries" turned on.

Selection Screen	Description
Scope Selection	Define what the code scan will be looking for : - All exclude listed SAP BW objects - Selection of specific SAP BW objects - All exclude listed ABAP objects
Execution Mode	Define which code locations are scanned
Restrictions	Optionally, limit the objects that are scanned to: - Code used in process chains - Code that's part of development package(s) - Code that has been last changed by user(s)
Further Settings	Write XREF Entries. Special option for Remote and Shell Conversion to prepare consistent scope definitions.
Logs	Display logs of previous runs

3.13 General Application Preparations

Before starting conversion activities, you need to do the preparatory activities described in the next sections.

3.13.1 Prepare the Use of the Maintenance Planner

Context

Besides the general preparation described in the Maintenance Planner User Guide, you have to make the following preparatory steps specific to the conversion to SAP BW/4HANA 2021:

1. Setup the Maintenance Planner as described in the Maintenance Planner User Guide available at help.sap.com/maintenanceplanner.
2. For in-place conversion download the Software Update Manager (SUM 2.0)

The following steps are only required, if you use SAP Solution Manager:

3. Apply SAP Note [2186164](#) to your SAP Solution Manager system.
4. Create an RFC-connection between your source release system and SAP Solution Manager:
 - a) In SAP Solution Manager, choose SOLMAN_WORKCENTER Solution Manager Administration Landscape (Technical Systems).
 - b) Click RFC connections Start New Window.
 - c) Select client 000 and choose Advanced Mode.
 - d) Under Export Options, fill in the field SAP Solution Manager Host Name.
 - e) Under Communication RFCs, select Create SM_<SID>CLNT<CLNT>_READ.
 - f) Select Create New User.
 - g) Enter a password.
 - h) Enter a user and password under Managed System Setup Administrator and choose Test Login in the group Administration Users to check that it works.

More Information

[Maintenance Planner](#) (Documentation)

[Maintenance Planner](#) (SAP Support Portal)

[Software Update Manager](#) (SAP Support Portal)

3.13.2 Remove Client 066 (In-place Conversion Only)

Context

Client 066 had been used to deliver services by SAP Active Global Support (SAP NetWeaver 7.4 and older). This client is not used anymore, therefore you can safely remove the client 066 if available. The client is not used in SAP BW/4HANA either. To prevent issues, for example, with job scheduling, you have to remove it before starting the system conversion.

Steps

1. To remove client 066, proceed as described in SAP Note [1749142](#).

3.13.3 Uninstall Add-ons (In-place Conversion Only)

Context

If you have add-ons (from SAP or other vendors) installed on your SAP BW system that are not released for SAP BW/4HANA 2021, you need to uninstall them. If you do not uninstall these apps, the Maintenance Planer will not allow a conversion of your system.

Steps

1. Check SAP Note [2189708](#) for a list of add-ons that are not compatible with SAP BW/4HANA 2021 and must be uninstalled.
2. If you have an add-on installed on your system which is not supported anymore on SAP BW/4HANA, prior to the system conversion, the add-on must be uninstalled.
3. A list of add-ons which can be uninstalled is available in SAP Note [2011192](#).
4. If your add-on is not listed there, please open a customer incident on the component BW-B4H-LM.

3.13.4 Uninstall SAP Fiori Apps (In-place Conversion Only)

Context

If you have SAP Fiori apps installed locally on your SAP BW system, you need to uninstall them, if they are *not* released for SAP User Interface Technology 7.50 or higher (SAP_UI 7.50, 7.51, 7.52 or 7.56). If you do not uninstall these apps, the Maintenance Planer will not allow a conversion for your system.

→ Note

Use the SAP Fiori Apps Reference Library to check which applications are available for SAP BW/4HANA 2021

Steps

1. Check SAP Note [2034588](#) for a list of apps that you need to uninstall, and the steps required to do so.

→ Note

SAP Note [2200415](#) provides a list of all apps that are supported by SAP_UI 7.5x.

2. Uninstall the apps using SAINT. For more information, see SAP Note [2011192](#).

3.13.5 Adding Disk Space (Remote Conversion Only)

Executing a scope transfer during a remote conversion will require additional disk space. Provide enough free disk space in the original and target system to store about 20 percent of the expected data volume to be transferred. If, for example, you want to transfer one terabyte of data from the original system, to the target system, ensure that you have 200 GB of free disk space in the original system. SAP BW/4HANA Conversion Cockpit compresses the data for transfer and uses the free space in the original system to store the data in the table cluster CNVLTR_L_BWCLU. You can reclaim the hard disk space after the scope transfer is completed.

→ Recommendation

If possible, we recommend placing table cluster CNVLTR_L_BWCLU into a separate tablespace.

3.13.6 Security

Using the SAP BW/4HANA Transfer and Conversion Cockpits requires certain authorizations. A consolidated list of authorization objects and values required for executing in-place as well as remote scope transfers is attached to SAP Note [2383530](#) (see also chapter 7.3 Security).

For executing a remote conversion, SAP role SAP_LTRL_MASTER contains all required authorizations.

3.14 List of Object-Specific Preparations

The list below contains important application-specific preparatory steps – before an in-place, remote, or shell conversion is possible – and where to find their documentation.

→ Note

This list contains an overview of important steps, but it is not necessarily complete. You find the complete list of conversion-relevant items in the [Simplification List](#), as explained in the

overview.

Preparatory Tasks per Application Area		Reference
3.x Data Flows	3.x DataSources / InfoPackages Transfer Rules Update Rules 3.x InfoSources 3.x Communication Structures 3.x Transfer Structures	SAP Note 2470352
3.x Authorizations	Reporting Authorizations	SAP Note 2478384
Near-line Storage	Partner Solutions	SAP Note 2441922
InfoObjects	Long Material Numbers	SAP Notes 2422224 and 2635167
InfoCubes	HANA-Optimizations, Audit Function	SAP Note 2443489
DataStore Objects (classic)	HANA-Optimizations	SAP Note 2451013
MultiProviders	Inconsistent InfoObject Mapping (can also be corrected during a scenario transfer, therefore only an optional preparation task)	SAP Note 2444718
Source Systems	ODP Readiness of SAP and SAP BW Source Systems	SAP Note 2473145
BEx Web Applications	Pilot program using the in-place conversion for SAP BW/4HANA	SAP Note 2496706
BW Workspaces	No transfer of local objects in workspaces using remote or shell conversion	SAP Note 2444273
Open Hub	Delete content of target tables	SAP Note 2469516
Export DataSources	Export DataSources (generated or generic) used to supply target SAP systems (via S-API) must be replaced by or converted to ODP DataSources in the <i>target</i> system	SAP Note 2443863 SAP Note 2483299

Documents

No transfer of documents attached to meta data objects or master/transaction data using remote or shell conversion
--

If any of the listed objects exist in your system, check the corresponding SAP Notes for required preparatory steps. For example, InfoCubes must be HANA-optimized before they can be converted to DataStore Objects (advanced).

In case of remote conversion, connections to SAP and BW Source Systems have to be established in the target system before the transfer and conversion of objects can be performed.

4 Realizing the In-Place Conversion

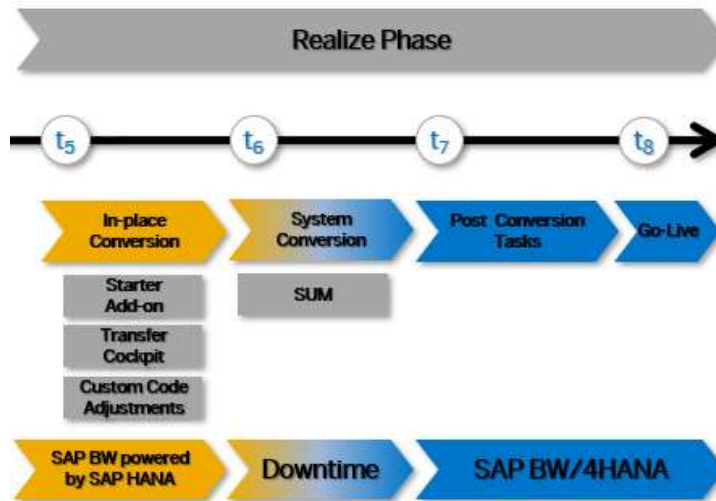


Figure 10: Realization Phase of In-place Conversion to SAP BW/4HANA

After the preparation phase, you start with the realization of the conversion to SAP BW/4HANA 2021 using the Transfer Cockpit and SUM. For a brief overview of the entire process, see Overview of Conversion Process.

Note

You find the general follow-on steps in this guide; you get the object-specific follow-on steps with the pre-check and custom-code checks and with the Simplification List for SAP BW/4HANA 2021. Some of the most important application-specific preparation steps are also listed in this section: List of Object-Specific Follow-On Activities.

4.1 Role of SAP BW/4HANA Starter Add-on

The SAP BW/4HANA Starter add-on makes it possible to transition from the existing object types, processes and interfaces to the new and optimized ones in SAP BW/4HANA. To do this, you need to perform the following steps in the SAP BW system after installing the add-on:

1. Check whether the objects and processes that the system uses are compatible with SAP BW/4HANA (Pre-check)
2. Transfer incompatible objects and processes to compatible ones.

Transferring data models and flows – a so-called scope transfer – is supported by the SAP BW/4HANA Transfer Cockpit.

3. Switch the system to an operating mode that only allows objects and processes that are compatible with SAP BW/4HANA

Switching the system to B4H mode prepares the SAP BW system for conversion to SAP BW/4HANA. It can also be performed with SAP BW/4HANA Transfer Cockpit and the task list started after successful execution of report.

4. Check whether all system-wide clean-up activities have been completed.
5. Switching the system to an operating mode from which the technical upgrade can be performed

Switching the system to ready-for-conversion mode completes preparation of the SAP BW system for conversion to SAP BW/4HANA. It can be performed again with the SAP BW/4HANA Transfer Cockpit.

4.2 Installing the SAP BW/4HANA Starter Add-on

Context

The SAP BW/4HANA Starter add-on is an SAP NetWeaver add-on that supports you when converting an SAP BW 7.5 system running on an SAP HANA database as its primary database to an SAP BW/4HANA system. You can implement the SAP BW/4HANA Starter add-on as of SAP BW 7.5 Support Package Stack 5 and use it to prepare a conversion of the system to SAP BW/4HANA.

4.2.1 Preparing Maintenance Planner

Before you can use maintenance planner, it is necessary to provide information about your system to the maintenance planner on the SAP Support Portal.

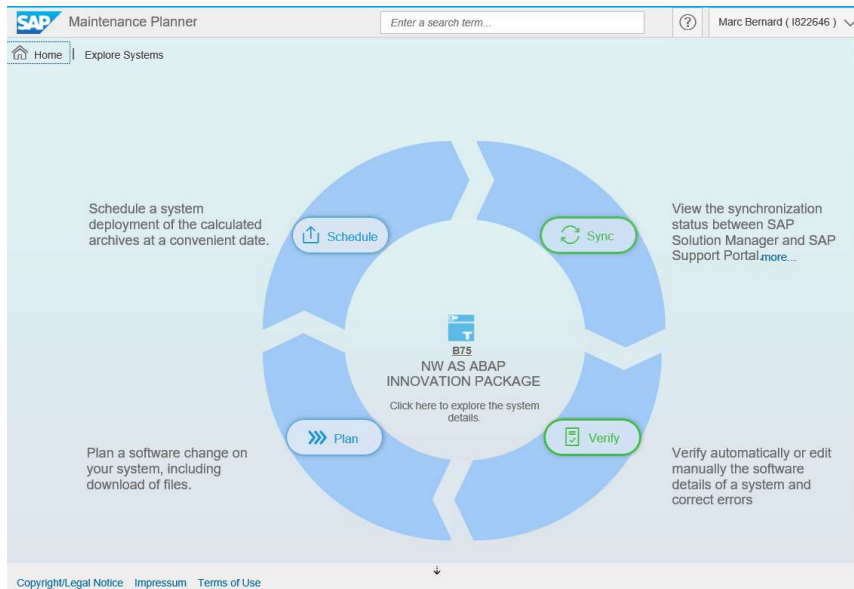
The recommended approach to upload or add the system, is through SAP Solution Manager. In exceptional cases, the MP tool allows you to add systems by uploading the system information XML generated for a technical system. It enables you to upload system information XMLs for systems.

Prerequisites

You have setup SLD and LMDB (see "[Configuring, Working with and Administering System Landscape Directory](#)") or uploaded the system information manually (see SAP Note [2287046](#)).

Procedure

1. Start the [Maintenance Planner](#).
2. Enter the system ID into the search box and select your SAP BW system from the search results.



3. Select "Sync" to view the synchronization status.

Data replication from other SAP Solution Manager variants		
Name	Status	Last Replicated On
SM8	Active	16.12.2016 14:36:37
Transaction:2000118988	Archived	06.12.2016 17:45:24

4.2.2 Update Software Patch Manager and Add-on Installation Tool

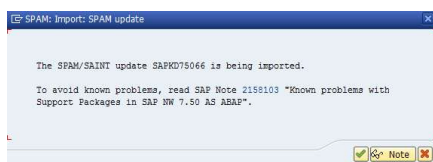
If not up-to-date, install the latest version (at least Version 72) of the Software Patch Manager and Add-on Installation Tool (SPAM/SAINT).

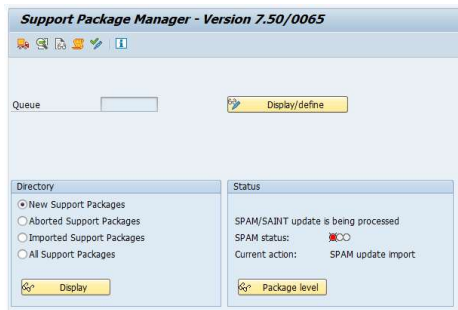
Prerequisites

You have downloaded the SPAM/SAINT package and copied it to the EPS inbox of you SAP BW system.

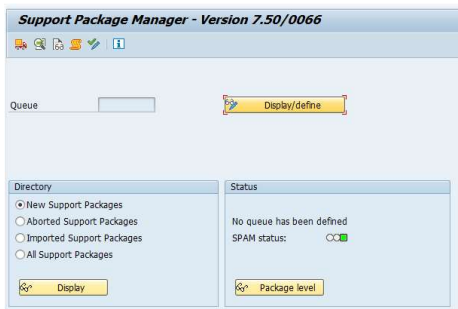
Procedure

1. Logon to client 000.
2. Start the software patch manager (transaction SPAM).
3. Select Support Package → Load Packages → From Application Server.
4. Select Support Package → Import SPAM/SAINT Update.





5. Wait until the update has completed and check that the update was successful.



4.2.3 Download Software using Maintenance Planner

You have to complete a maintenance task transaction to create the stack.xml file and download all required software packages for the SAP BW/4HANA Starter Add-on.

Prerequisites

You have synchronized and verified your system information with the SAP Support Portal (see previous chapter).

Procedure

1. Access the [Maintenance Planner](#) (SAP Support Portal).
2. Enter the system ID into the search box and select your SAP BW system from the search results.
3. Select "Plan" to start a maintenance transaction for your SAP BW system.

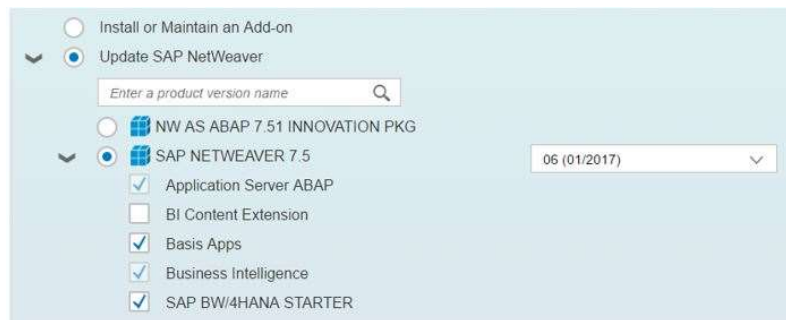
→ Note

Make sure, you have removed all non-supported add-ons from your SAP BW system before proceeding. E.g. the unsupported add-ons will not work and will lead in the Maintenance Planer in the error: "OCS package SAPK-100AHINBW4HANA does not match the current software component vector"

NEW: When you include attribute change package 08 (ACP BW4HANA===100), then SEM_BW and POSDM are allowed to exist on your SAP BW system, although they do not exist for SAP BW/4HANA. This allows you to begin the transfer activities in SAP BW. However, the final system conversion to SAP BW/4HANA will not be possible until either these add-ons are uninstalled or available for SAP BW/4HANA.



4. Choose the option "Update SAP NetWeaver" to select the "SAP BW/4HANA Starter Add-On":



5. Select only the SAP BW/4HANA Starter Add-On including SP 1 to avoid re-implementation of other Support Packages:



- Download the final Stack XML file and selected packages using the SAP Download Manager. You can then use the [SAP Download Manager](#) to export the files to your system landscape. Unpack the SAR file to your EPS inbox.
- Select "Next" to complete the maintenance transaction.

4.2.4 Perform Installation using Add-on Installation Tool

The installation of the SAP BW/4HANA Starter add-on is performed using the Add-On Installation Tool.

Prerequisites

You have downloaded the stack.xml file including all required software components, support and attribute change packages and copied them to the EPS inbox of you SAP BW system.

Procedure

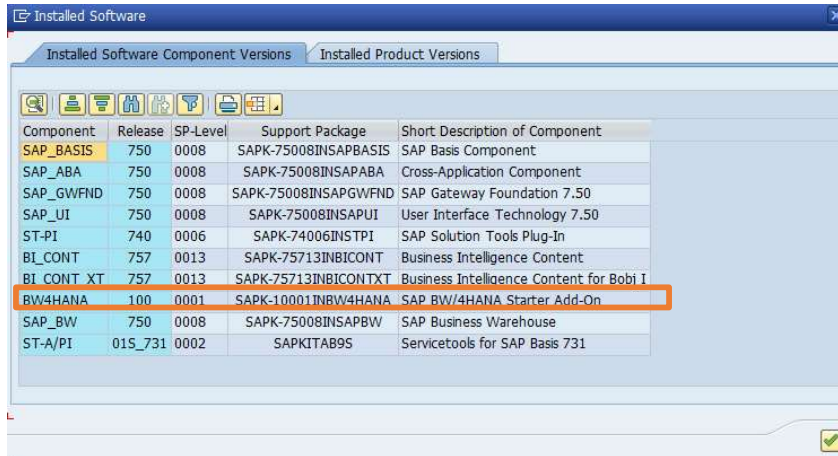
- Logon to client 000 of your SAP BW system.
- Start the Add-on Installation Tool (transaction SAINT).
- Choose Installation Package → Load Package and upload the software packages.
- Load the stack.xml file:



- Confirm the queue and continue the installation:



- At the end of the installation, the BW4HANA software component should be available:



More Information

SAP Note [2189708](#) – SAP BW/4HANA Starter Add-On -Handling and Usage

SAP Note [2246699](#) – SAP BW/4HANA Starter Add-On – Pre-Req/Installation/De-Installation/Update

4.3 Updating System Landscape using SAP BW Note Analyzer

After installations of the SAP BW/4HANA Starter Add-on, it is necessary to update the system landscape to the latest version of the SAP BW/4HANA Transfer Cockpit. This is achieved by running SAP BW Note Analyzer with the corresponding XML file and implementing all required SAP Notes. For more details, see chapter 7.1.2 Landscape Preparation for In-place Conversion.

→ Note

SAP is continuously updating the tools required for conversion. Therefore, it is highly recommended to update the SAP BW/4HANA Transfer Cockpit on a regular basis by running SAP BW Note Analyzer with the most recent XML files attached to SAP Note [2383530](#).

→ Caution

After installing the SAP BW/4HANA Starter Add-on and updating the system using SAP BW Note Analyzer, only in **BW** and **Compatibility mode** the implementation of support packages is possible.

Do **not** implement any support packages when the system is in **B4H** or **Ready-for-Conversion mode**! There's a high risk that the system becomes inconsistent, otherwise.

4.4 Operating Modes

SAP BW/4HANA Starter Add-On is delivered as an SAP NetWeaver add-on. When the add-on is imported on an SAP NetWeaver installation, the system is in **Compatibility Mode**. Object types, processes and user interfaces in existing scenarios are still tolerated in this mode, but new scenarios must be implemented with the new SAP HANA-optimized object types, processes and interfaces. To enable a system to work properly with these simplified and SAP HANA-optimized scenarios, you can switch it to SAP BW/4HANA mode, which is known as **B4H mode**. The **Ready-for-Conversion** mode that is used to perform the technical system conversion. In emergency situations, you can also revert the system to **BW Mode**.

Existing scenarios and the BI Content can contain objects that are not supported in SAP BW/4HANA. However, in SAP BW/4HANA Starter add-on, these objects are still tolerated in compatibility mode (unlike in B4H mode). In order to switch from compatibility mode to B4H mode, you first need to replace these objects by the relevant successor objects (or transfer these objects to the successor objects). You can also delete the old objects, if they are no longer needed. The B4H is a temporary mode, which should only be used to perform further cleanups, to ensure that the system achieves a state that permits a switch to the Ready-for-Conversion mode. The Ready-for-Conversion mode is only used on a temporary basis - immediately before the conversion of system to SAP BW/4HANA.

4.4.1 BW Mode

A system in BW mode operates the same way as an SAP BW system without the SAP BW/4HANA Starter Add-on.

It should be necessary to revert to BW mode only in exceptional cases.

4.4.2 Compatibility Mode

For a system in Compatibility mode, the following rules apply:

- Objects that have unsupported object types cannot be created using user interfaces or BAdIs.
- "Creating" objects that have unsupported object types is possible using one of the following methods:

- Importing BI Content
- Importing scenarios with objects that have unsupported object types from an SAP BW system

Objects "created" using one of the two methods in the system must then be transferred to objects that have a supported object type.

- Existing scenarios can continue running as before.
- All objects can be changed. However, to export (transport) unsupported object types, prior approval is required. This approval is attained by registering the object in a allowlist (see Approving the Export of Unsupported Objects (Allowlist)).
- The SAP BEx tools can still be used. For more information, see SAP Note [2399578](#).

4.4.3 B4H Mode

The following applies to a system in B4H mode:

- The import is protected, and no more imports of unsupported objects are possible.
- No new objects with unsupported object types can be created (neither via interfaces or BADIs, nor via BI Content transfer or import).
- The SAP BEx tools cannot be used anymore.
- Registering objects in the allowlist is not relevant anymore, as there are no unsupported objects in B4H mode.
- Virtual InfoProviders for SAP Business Planning & Consolidation (SAP BPC) are still allowed.

→ Caution

Do **not** implement any support packages when the system is in **B4H mode**! There's a high risk that the system becomes inconsistent, otherwise.

4.4.4 Ready-for-Conversion Mode

The following applies to a system in Ready-For-Conversion mode:

- All system-wide cleanup operations have been successfully completed.

→ Caution

Do **not** implement any support packages when the system is in **Ready-for-Conversion mode**! There's a high risk that the system becomes inconsistent, otherwise.

4.4.5 Switching Modes

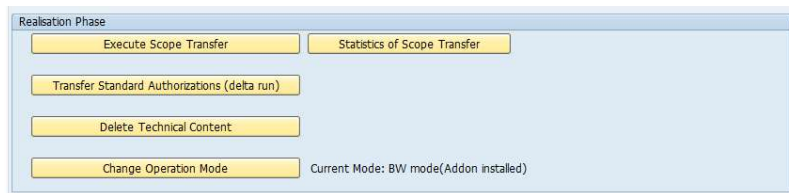
If your system contains the SAP BW/4HANA Starter add-on, you can use transaction RSB4HCONV (report RS_B4HANA_CONVERSION_CONTROL) to change the mode that your SAP BW system runs in. If you want to switch from one mode to another, a corresponding task list in the system with the ABAP Task Manager is started. The task list checks whether the system is in a status that allows the new mode and lists all activities that must be performed prior to the switch. If all prerequisites for the new mode are met, the system switches to the new mode. In simulation mode, you can check at any time whether the system is ready to be switched to another mode.

Prerequisites

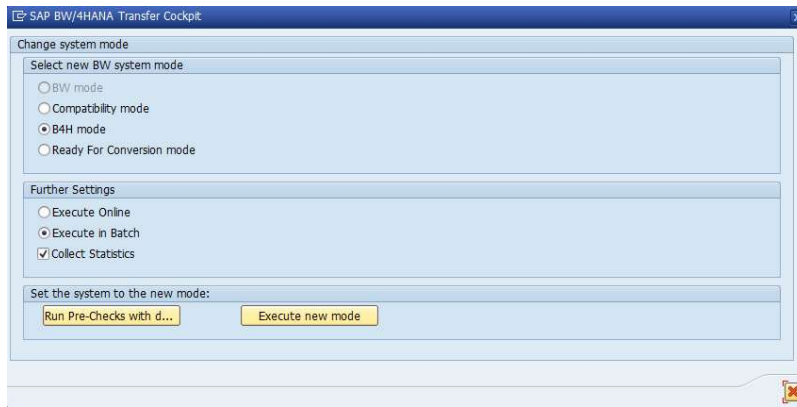
You need authorization for authorization objects S_RS_B4H, S_TC, and S_RFC.

Procedure

1. Start the Transfer Cockpit (transaction RSB4HCONV).
2. Select "Change Operating Mode".



3. Select which mode you would like to switch to under "Select new BW system mode". You have the following options:
 - BW mode
 - Compatibility mode
 - B4H mode
 - Ready-for-Conversion mode



4. Under “Set the system to the new mode”, define whether to simulate the new mode first (“Run Pre-Check with dedicated mode”) or to switch directly (“Execute new mode”).

From Compatibility Mode to B4H Mode

You can only switch to the B4H mode, if the system only contains objects with a supported object type and if the other activities controlled via the task list have been executed. If there are unsupported objects, a list of required activities is displayed, and the switch is not executed.

When you can execute the switch, and switching is possible, a task list is run is started. Unsupported objects are deleted or migrated and the B4H mode is set.

The objects to be deleted include all BEx objects, data mining models, APD analysis processes, InfoSpokes, Xcelsius Dashboards, Crystal Reports, Configuration for Real-Time Data Acquisition and process chains (deletion of process chain type and variants), which are based on obsolete objects. InfoObject Catalogs are migrated to InfoAreas and 3.x queries are transferred to 7.x queries.

If it turns out that the system cannot accommodate B4H mode at present, you can use the report to return to compatibility mode at any time. However, the changes performed via the task list are not undone.

You can find the description of the individual tasks in task list RS_COMPATIBILITY_TO_B4H (transaction STC01).

From B4H Mode to Ready-for-Conversion Mode

You can only switch to the Ready-For-Conversion mode, if all system-wide cleanup operations have been successfully completed.

This includes deleting: all BI Content (i.e. D versions of all SAP BW objects), VirtualProviders for planning, unsupported source systems, Service API connections to other BW systems, PSA tables and cleanup of error stacks. The switch will also halt all process chain schedules

and real-time data acquisition daemons (planned for 2019). The system can only be switched to Ready-for-Conversion mode once all these actions have been completed.

It is not possible to return to any other mode (since changes performed via the task list can't be undone and all master data processes would be locked). If it turns out that the system cannot accommodate Ready-For-Conversion mode, please contact SAP support.

You can find the description of the individual tasks in task list RS_B4H_TO_READY4CONVERSION (transaction STC01).

From Compatibility or B4H Mode back to BW Mode

You can switch at any time to the BW mode. There will be no changes to the system and it will operate the same way as a standard SAP BW system after the switch is completed (i.e. like SAP BW without the SAP BW/4HANA Starter Add-on). However, any changes you made while in Compatibility or B4H Mode remain and are not reversed.

Next Steps

Under Application Log, you can call prior application logs for this report.

4.4.6 Approving the Export of Unsupported Objects (Allowlist)

In Compatibility Mode, you can approve the export of objects that are not supported anymore in B4H Mode. You do this by registering the export on a allowlist with program RS_B4HANA_WHITELIST_MAINTAIN. Objects that are registered on the allowlist can be exported in a transport request.

Prerequisites

You need authorization for authorization object S_RS_B4H.

Procedure

1. In the ABAP Editor (transaction SE38), run program RS_B4HANA_WHITELIST_MAINTAIN.
2. Select the object type of the object that you want to register in the allowlist and confirm your selection.
3. Press Maintain TLOGO Object.
The allowlist for the selected object type appears.
4. Choose (Create New Entry).
5. Click on the Option field to select an option.
6. Select the object using the Lower Limit and/or Upper Limit fields and save the entry.

Results

Once an object is registered in the allowlist, you can export it in a transport request.

4.4.7 System Landscape Considerations

In an existing system landscape, it is necessary to ensure that existing scenarios keep running but also that they can subsequently be converted to scenarios that are optimized for SAP HANA and compatible with SAP BW/4HANA. New scenarios should only be created as optimized for SAP HANA and thus be equipped for conversion to SAP BW/4HANA.

Note the following rules in the development system:

1. The development system is in compatibility mode.
2. Existing scenarios can continue running as before.
3. If it is necessary to make changes to existing scenarios, the corresponding object (with the supported object type) must be registered in the allowlist.
4. Existing scenarios can be converted in stages. Unsupported objects, which successor objects exist for after the conversion, can be deleted.
5. New scenarios are only created with objects of supported object types.
6. The development system is switched to B4H mode once all scenarios have been switched.
7. Once all preparatory activities have been completed, the system is switched to Ready-for-Conversion mode with subsequent system conversion to SAP BW/4HANA.

In the test and production system, the following applies:

- Switching to B4H mode is not possible until all scenarios or objects with unsupported object types have been transferred, and the deletions of unsupported objects have been transferred to the production system.
- The switch to Ready-for-Conversion mode with subsequent system conversion to SAP BW/4HANA takes place when you go live.

4.5 List of Object-Specific Conversion Activities

The following sections of this guide describe object-specific conversion tasks. Prerequisite is that all preparation tasks (especially, items listed in 3.9.4 Source Systems) have been completed.

Conversion Tasks per Application Area		Reference
Data Acquisition	Myself Source System SAP Source Systems BW Source Systems	Convert using Transfer Cockpit
	S-API DataSources	
Data Warehousing	InfoCubes DataStore Objects (classic) InfoSets MultiProviders	Convert using Transfer Cockpit

Analytic Engine	3.x Queries	Convert using Task List (when switching to B4H mode)
Integrated Planning	All BW-IP/PAK objects	Convert using Transfer Cockpit
Business Planning and Consolidation	All objects	Convert using Transfer Cockpit
Security	Standard Authorizations	Convert using Transfer Cockpit
	Analysis Authorizations	Convert using Transfer Cockpit
Analysis Process Designer	APD Processes	Convert using Transfer Cockpit
All other objects		Redesign or Delete

4.6 Custom Code Adjustments

You might have to adjust custom code that is embedded or referencing transferred SAP BW objects. Based on the findings of the Code Scan Tool (see chapter 3.12 Custom Code Analysis), adjust your custom code.

→ Note

In some cases, it might not be possible to adjust the custom code before the object transfer without creating syntax errors and therefore preventing the activation of original SAP BW objects. We recommend commenting out the custom code for the duration of the object transfer (one typically marks it with “*TODO”) and perform the code adjustment after the object transfer is completed.

4.7 Preparing Transfers of Standard Authorizations

4.7.1 Conversion Rules of Authorization Objects

Conversion from SAP BW to SAP BW/4HANA requires also conversion of authorization objects. There are four types of actions that need to be applied for respective authorization objects:

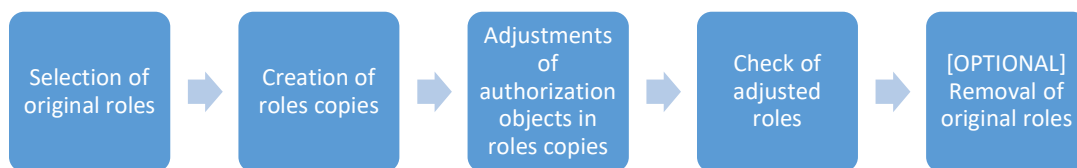
- Assume – Nothing to do. Authorizations will continue to work after conversion
- Adjust – Check and adapt values of authorization objects
- Replace – Change authorization object and adapt its values
- Obsolete – Not needed/supported authorization object that should be removed

The assignment of actions to existing authorization objects can be found in SAP Note [2468657](#).

The SAP BW/4HANA Transfer Cockpit provides an Authorization Transfer Tool to automate the transfer of existing security roles.

4.7.2 Copy Principle

The Authorization Transfer Tool uses already existing roles in your system. It will create copies of these roles while preserving original ones. Conversion rules for authorization objects are then applied on top of these role copies. After the conversion of objects using the Scope Transfer Tool, both original and created roles will be assigned to the users. After confirmation of authorization object conversion and a successful system conversion to SAP BW/4HANA, you can remove original roles.



4.7.3 Dependencies on Scope Transfer Tool

Authorization object conversion rules can be divided into two categories:

1. Rules *not* dependent on other conversion actions
 - a. Assume
 - b. Obsolete
2. Rules dependent on other conversion actions
 - a. Adjust
 - b. Replace

For the second group, any required actions on top of authorization objects can be carried out only after the transfer of their corresponding SAP BW objects is done in the system. The transfer of the SAP BW object must be done using the Scope Transfer Tool. The transfer runs will provide the information required to adjust or replace the authorization objects in the selected roles:

- Mapping of new names and types of converted InfoProviders, transformations, etc.
- Names of additional InfoProviders created (e.g. Composite Provider for DataStore objects (advanced) with navigational attributes)

4.7.4 Initial/Delta Run of Authorization Objects Transfer

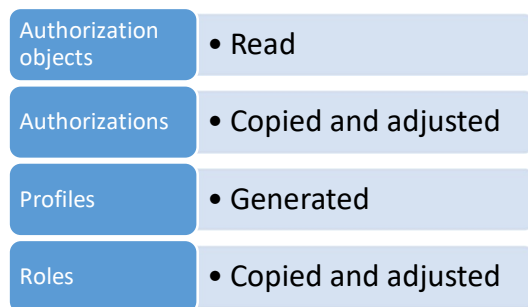
By distinctions of rules, the Authorization Transfer Tool execution is divided into two parts:

1. Initial Run (Preparation Phase)
 - a. Not dependent on scope transfer execution

- b. Handles rules of first group
- 2. Delta Run (Realization Phase)
 - a. Dependent on scope transfer execution
 - b. Handles rules of second group

4.7.5 Simulation Mode

The Authorization Transfer Tool supports a simulation mode. In simulation mode, no role copies are created in the system until both initial and delta run of authorization objects transfer is confirmed by a user. All role copies are only prepared and stored temporarily tables. After confirmation by a user, the actual creation of new roles in the system is executed. In the following diagram, SAP authorization system objects that are used by tool are defined.



Using this process, it's possible to run most of the authorization transfer steps by users without high level authorizations assigned (like authorizations for role management).

4.7.6 Transfer Process (Initial Run)

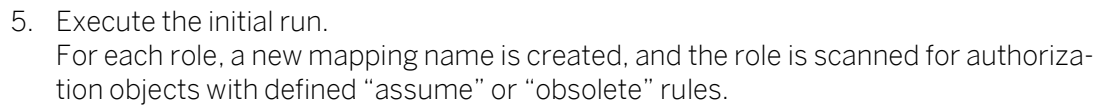
The transfer of authorizations is performed as follows:

1. Start the Transfer Cockpit (transaction RSB4HCONV)
2. Select "Transfer Standard Authorizations (initial run)"¹⁰
3. Create a Run ID



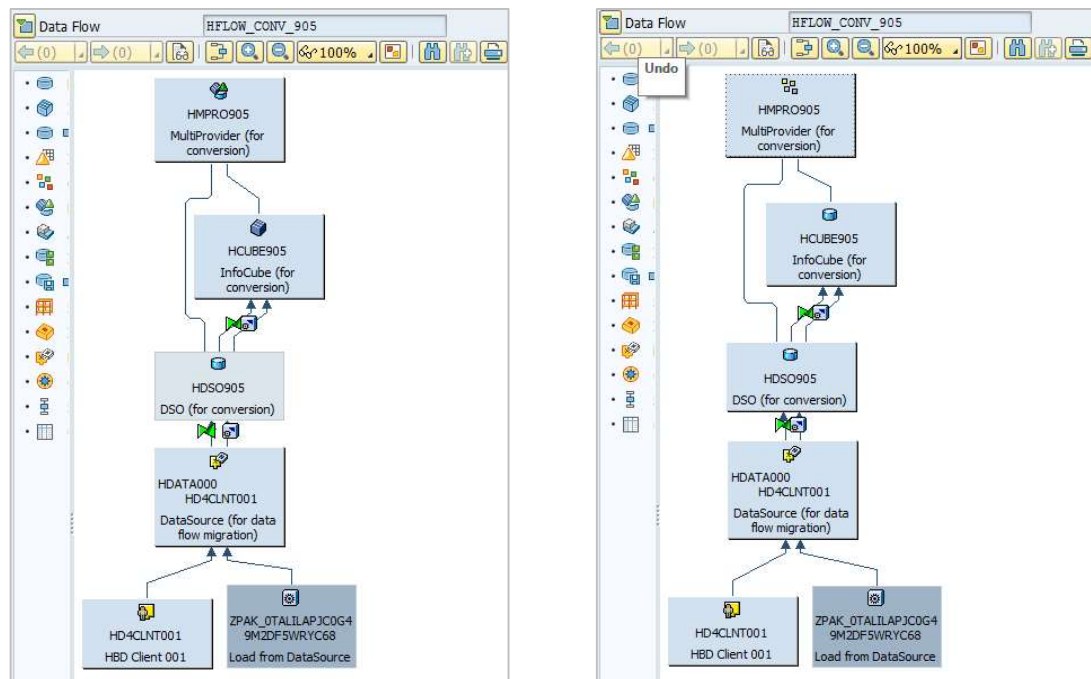
4. Select original roles

¹⁰ Program RS_B4HTAU_CREATE_RUN



Example

The following pictures show an example of transferring a data flow which includes a standard DataStore Object, an InfoCube, and a MultiProvider.



After the scenario transfer, the DataFlow consists of a CompositeProvider and two DataStore Objects (advanced).

→ Note

An option to rename objects during the scope transfer is planned for a future version of the Transfer Cockpit.

Demo

You can find a recording of a complete scope transfer on [YouTube](#).

Features

Object types that are not available in SAP BW/4HANA are replaced by other object types or features. The following table lists the object types that are not available anymore and can be converted using the Transfer Cockpit, together with their successors and the Simplification Item (see the corresponding SAP Notes for details and limitations regarding each object type):

Previous Object Type	Successor Object Type (Optimized for SAP HANA)	Simplification Item
DataStore object (classic)	DataStore object (advanced)	SAP Note 2451013
DataStore object (advanced) with old request management	DataStore object (advanced) with new request management	SAP Note 2487023
InfoCube	DataStore object (advanced)	SAP Note 2443489
MultiProvider	CompositeProvider	SAP Note 2444718
InfoSet	CompositeProvider	SAP Note 2444912
Sematic Partitioned Object: InfoCube or DataStore object (classic)	Sematic Group of DataStore object (advanced)	SAP Note 2472609
Old CompositeProvider (COPR)	CompositeProvider (HCPR)	SAP Note 2442062
Myself Source System	ODP Source System	SAP Note 2479674
BW and SAP Source System	ODP Source System	SAP Note 2473145
DB Source System	HANA Source System	SAP Note 2447932
InfoPackage and PSA	Data Transfer Process + DataStore object (advanced)	SAP Note 2464367

The following object types will be automatically adjusted during a scope transfer:

Object Type / Feature	Adjustments
Analysis Authorization	Replace objects with corresponding successors (see also 7.3 Security)
BW Query / Query View	Adjust or replace InfoProvider that query is based on
BW Workspace	Replace objects with corresponding successors
DataSource	- Adjust according to changes of source systems - Replace export DataSources (8*) used in MYSELF source system with ODP-BW source system and DTP
Data Transfer Process	- Source and target of DTP - Replace Error DTP with Data Transfer Intermediate Storage (DTIS). The DTP is set to inactive during scope transfer and the DTIS is created when the DTP is re-activated after

	conversion to SAP BW/4HANA (handled automatically by the post conversion task list).
DataFlow	• Replace objects with corresponding successors
HANA Analysis Process	• Replace objects with corresponding successors
Integrated Planning	• Adjust or replace InfoProvider that aggregation level is based on • Planning functions
Near-line Storage / Data Archiving Process	• Adjust NLS request management and re-created Data Archiving Process for advanced DSO
Open Hub Destination	• Switch to new request management
Process Chain / Process Variants	• Replace InfoPackages with DTPs • Replace Activation of classic DSO with advanced DSO • Replace Delete PSA Requests, Request Compression, and Delete Change Log, with Clean-up for advanced DSO • Replace APD Processes with “dummy” process chains as placeholders for the APD Transfer Tool
Transformations	• Source and target of transformation • Lookup of DataStore objects

→ Recommendation

It's recommended to model scopes that you want to transfer using DataFlows. This way you can easily separate “design” of what should be transferred from the execution of the transfer. The DataFlow can then be processed using the Transfer Cockpit as a “technical task”.

Documentation

You can find a detailed documentation of the tasks performed during a scope transfer in the system (transaction STC01) or on the [SAP Help Portal](#) → Task List Documentation for Conversion to SAP BW/4HANA.

4.8.2 Perform a Scope Transfer

Prerequisites

In particular, you need authorization for authorization objects S_RS_B4H, S_TC, and S_RFC. You also need authorization advanced DataStore objects (S_RS_ADSO), CompositeProviders (S_RS_HCPR), or any other object created or modified during the conversion. A consolidated list of authorization objects and values required for in-place scope transfer is attached to SAP Note [2383530](#).

You have checked the consistency of the SAP BW system and repaired any issues that might exist. Essential consistency checks are included in task list RS_B4H_CHK_CLEANUP.

- Routine/Formula References (program RSTRAN_ROUT_RSFO_CHECK)

Check and repair inconsistencies for routines and formulas used in transformations

- Orphaned Programs (program RSTRAN_TRFN_DELETE_ORPHAN_PROG)

Check for and deleted obsolete programs that were generated for transformations.

- Cleanup BW Object Relation Table RSOOBJXREF

Table RSOOBJXREF contains interdependencies between different BW objects. The purpose of this table is a fast relationship search which is executed when objects are collected, for the BW/4HANA transfer tool for example.

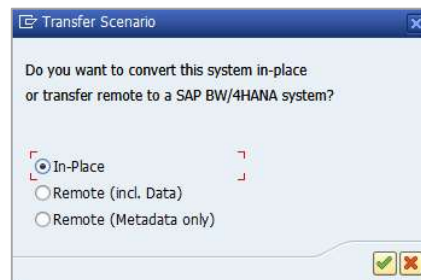
The table might contain wrong or outdated entries however. This should usually not be the case, but to avoid false negative errors, i.e. objects being collected which actually do not exist, this task can be executed to clean-up the reference table.

It's important that master and transaction data are 100% consistent. Issues for example with missing SID values will cause problems during the scope transfer. It is therefore recommended to run corresponding consistency checks for objects that you want to transfer (see transaction RSRV).

Procedure

1. Start the SAP BW/4HANA Transfer Cockpit using transaction RSB4HCONV and select "Scope Transfer".

Alternatively, use transaction RSB4HTRF and choose between in-place, remote, or shell conversion:



Select "In-Place" to continue.



Choose whether you want to create a new conversion run or show the results of a previous conversion.

→ Tip

If you run multiple conversions, it makes sense to create variants using well thought out naming conventions. This will later help to distinguish between various conversion runs.

2. For each conversion run, you first have to select the scope i.e. which objects should be converted.

Maintain Task List Run SAP_BW4_TRANSFER_INPLACE_2017112222926163

Task List: SAP_BW4_TRANSFER_INPLACE Tasks to Transfer BW objects to be compatible to BW/4

Task List Run: SAP_BW4_TRANSFER_INPLACE_2017112222926163

E...	C...	S...	L...	Autom.	Phase	Comp.	Task Description	H...	P...	Parameter Description
☐	☐	☐	☐		Cleanup	BW	Cleanup BW Object Relation Table RSOBJXREF			
☒	☒	☒	☒		Scope definition	BW	Collect Scope for Transfer (Data Flow)			
☒	☒	☒	☒		Scope definition	BW	Define Object Mapping and Store Object List			
☒	☒	☒	☒		Prepare	BW	Map InfoObjects for InfoProvider			
☒	☒	☒	☒		Prepare	BW	Determine Usage of Involved Objects			
☒	☒	☒	☒		Prepare	BW	Checklist for Usage of Involved Objects			
☒	☒	☒	☒		Cleanup	BW	Delete unsupported objects			
☒	☒	☒	☒		Prepare	BW	Copy delta queues from SAPI to ODP technology			
☒	☒	☒	☒		Prepare	BW	Confirm that delta was loaded for the cloned DataSources			
☒	☒	☒	☒		Prepare	BW	Synchronize Delta Queues between SAPI and ODP			
☒	☒	☒	☒		Prepare	BW	Extract from PSAs of DataSources and Error Stacks			
☒	☒	☒	☒		Prepare	BW	Preparation of Old InfoProviders			
☒	☒	☒	☒		Prepare	BW	Lock All Data Changes			
☒	☒	☒	☒		Prepare	BW	Prepare Request Mapping for Transfer			
☒	☒	☒	☒		Rename	BW	Save Data			
☒	☒	☒	☒		Rename	BW	Transfer Metadata			
☒	☒	☒	☒		Rename	BW	Transferring the request info to the new status management			
☒	☒	☒	☒		Import	BW	Retrieve Data			
☒	☒	☒	☒		Finalization	BW	Unlock Loading and Data Target Changes			

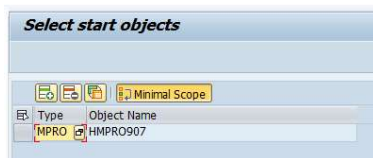
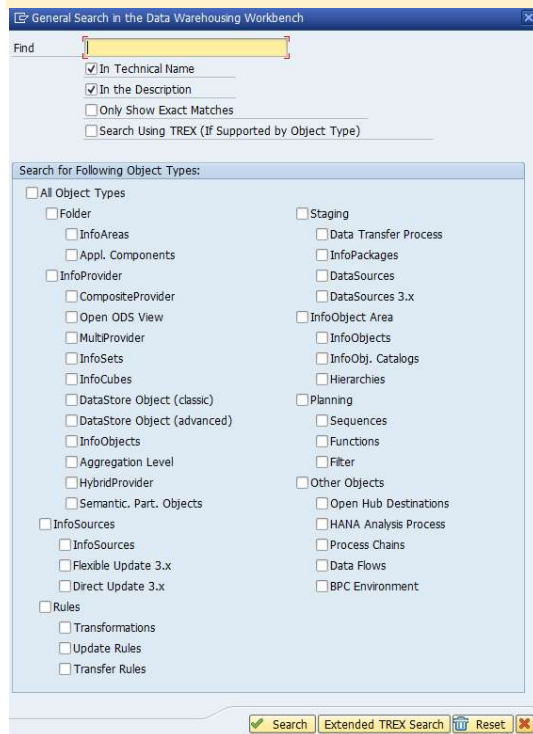
3. Select "Add New Object" and search for the objects you want to use as a starting point for determining the conversion scope:

→ Note

At least one object has to be included in the list. Also, an object can be included in only one open task list run. Trying to process an object that is included already in another task list run, will lead to an error and you will have to finalize the other task list run first before the object can be included again in a scope selection.

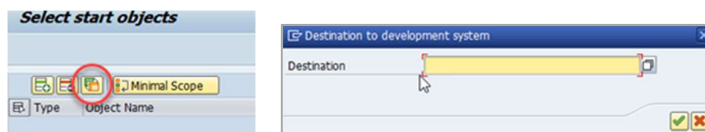
During testing, you can run into the following situation: If you transferred an object and afterwards deleted the successor object and recreated it in the previous, classic

type, then trying to transfer the object in a subsequent task list run will lead to an error message. You will have to clean-up the old transfer settings first using program RS_B4HANA_INPLACE_CLEANUP.



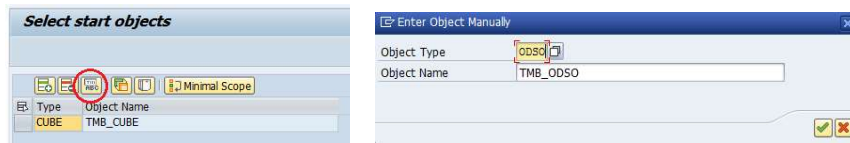
Alternative ways to populate the scope list:

- Launching the Transfer Toolbox from the DataFlow maintenance (transaction RSA1). This will add all objects of the DataFlow as start objects to the scope. Alternatively, you can add the DataFlow objects as a start object manually.
- Launching the Transfer Toolbox from the Process Chain maintenance (transaction RSPC). This will add the Process Chain to the scope.
- Copying the scope from another system. This will transfer the initial scope selection between systems (typically from development to test or production).



The remote system will be scanned for start objects in all finalized task list runs that also have been converted.

- Manually entering objects. The system will ask for object type (TLOGO) and name¹².



To limit the scope to the least number of objects based on dependencies, you can select “Minimal scope”. This option allows to separate the transfer of the reporting layer from the transfer of the staging layer. This way you can, for example, convert a MultiProvider to a CompositeProvider without selecting the Part Providers of the MultiProvider.

Special feature

The Transfer Toolbox introduces a feature for an optimized Request Transfer. This request transfer is based on a preliminary processing of the data in the InfoProviders before transfer. It results in a reduced number of TSN based Requests in the resulting ADSOs, InfoObjects and Open Hub Destinations.

In the selection screen of the start objects a toggle box "Requests" for optimized request transfer has been introduced. It is switched off by default. Once the scope is collected, the flag can't be changed anymore.



Therefore, the optimized request transfer is between 5 and 100 times faster, depending on your system (hardware, model complexity). This means that instead between 5 and 100 Requests per Minute, now between 500 and 1000 Requests can be transferred per Minute.

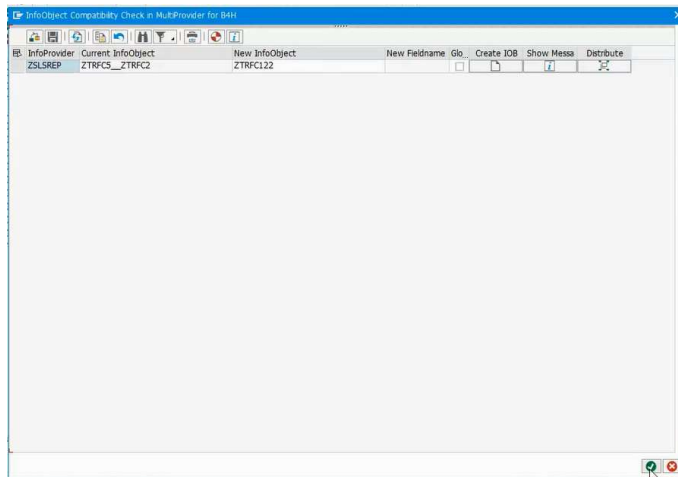
This also means that it is not necessary to reduce the requests before the transfer, only a reduced number of requests will be transferred, which in turn will minimize the exposure to follow up problems in the life cycle of the transferred requests.

For more information see SAP Note [2482164](#) - BW4SL - Request and Status Management.

- Save your selection and return to the task list.
- Continue the task list run by selecting “Execute”.

The task list will continue and stop at the next step.

¹² DataSources should be selected using the search option, otherwise they are not selected uniquely for the source system.



9. The task list will stop at the end of the prepare phase.

E...	C...	S...	L...	Autom. Phase	Comp.	Task Description	H...	P...	Parameter Description
☐				Cleanup	BW	Cleanup BW Object Relation Table R50OBJXREF			
☐				Scope definition	BW	Collect Scope for Transfer (Data Flow)			
☐				Scope definition	BW	Define Object Mapping and Store Object List			
☐				Prepare	BW	Map InfoObjects for InfoProvider			
☐				Prepare	BW	Determine Usage of Involved Objects			
☒				Prepare	BW	Checklist for Usage of Involved Objects			
☒				Cleanup	BW	Delete unsupported objects			

Maintain the parameters to view, adjust, and confirm usage of the involved objects in custom coding, Business Add-ins (BADIs), or authorizations.

→ Tip

Conversion of classic to advanced DataStore Objects generates so called "compatibility views" for the activation queue and active data table of the classic DataStore object. This will reduce the effort to adjust custom coding. SAP Note [2539205](#) is required.

CheckList for Customer Coding						
Resolved	Status	Check Again	Object Type	Object Name	Where Used	Show Details
☒			BADI	*		
☒			AUTH	*		

You have to check all occurrences and mark them as "resolved" in order to continue.

→ Note

If you do not resolve issues in custom code, this might lead to syntax errors and prevent the successful activation of the transferred objects.

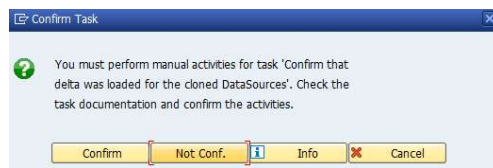
- Continue the task list run by selecting “Execute” and “Background”.

'Delete unsupported objects' is a long running task and can only be started in background.

- The task list will continue and stop to let you confirm that deltas were loaded from delta queue into PSA tables of any cloned DataSources.

☐		Cleanup	BW	Delete unsupported objects		
☐		Prepare	BW	Copy delta queues from SAPI to ODP technology		
☒		Prepare	BW	Confirm that delta was loaded for the cloned DataSources		
☒		Prepare	BW	Synchronize Delta Queues between SAPI and ODP		
☒		Prepare	BW	Extract from PSAs of DataSources and Error Stacks		

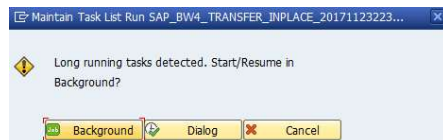
Click the “User” icon for the corresponding task and confirm the activity in the popup:



→ Note

It's not possible to confirm when the task list run is in display mode. The task list run must be in maintenance mode.

- Continue to execute the remainder of the task list in background.



☐		Prepare	BW	Synchronize Delta Queues between SAPI and ODP		
☒		Prepare	BW	Extract from PSAs of DataSources and Error Stacks		
☒		Prepare	BW	Preparation of Old InfoProviders		
☒		Prepare	BW	Lock All Data Changes		
☒		Prepare	BW	Prepare Request Mapping for Transfer		
☒		Rename	BW	Save Data		
☒		Rename	BW	Transfer Metadata		
☒		Rename	BW	Transferring the request info to the new status management		
☒		Import	BW	Retrieve Data		
☒		Finalization	BW	Unlock Loading and Data Target Changes		

- The duration of the transfer depends on the number of objects included in the scope and the data volume that must be transferred.

Refresh the display to see if and when the transfer is completed.

Display Task List Run SAP_BW4_TRANSFER_INPLACE_20171123223449358

Task List: SAP_BW4_TRANSFER_INPLACE Tasks to Transfer BW objects to be compatible to BW/4

Task List Variant: HMPRO907 Convert MultiProvider HMPRO907

Task List Run: SAP_BW4_TRANSFER_INPLACE_20171123223449358

E	C	S	L	Autom. Phase	Comp.	Task Description	H	P	Parameter Description
☐	☐	☐	☐	Cleanup	BW	Cleanup BW Object Relation Table RSOBJXREF			
☒	☒	☒	☒	Scope definition	BW	Collect Scope for Transfer (Data Flow)			
☒	☒	☒	☒	Scope definition	BW	Define Object Mapping and Store Object List			
☒	☒	☒	☒	Prepare	BW	Map InfoObjects for InfoProvider			
☒	☒	☒	☒	Prepare	BW	Determine Usage of Involved Objects			
☒	☒	☒	☒	Prepare	BW	Checklist for Usage of Involved Objects			
☒	☒	☒	☒	Cleanup	BW	Delete unsupported objects			
☒	☒	☒	☒	Prepare	BW	Copy delta queues from SAPI to ODP technology			
☒	☒	☒	☒	Prepare	BW	Confirm that delta was loaded for the cloned DataSources			
☒	☒	☒	☒	Prepare	BW	Synchronize Delta Queues between SAPI and ODP			
☒	☒	☒	☒	Prepare	BW	Extract from PSAs of DataSources and Error Stacks			
☒	☒	☒	☒	Prepare	BW	Preparation of Old InfoProviders			
☒	☒	☒	☒	Prepare	BW	Lock All Data Changes			
☒	☒	☒	☒	Prepare	BW	Prepare Request Mapping for Transfer			
☒	☒	☒	☒	Rename	BW	Save Data			
☒	☒	☒	☒	Rename	BW	Transfer Metadata			
☒	☒	☒	☒	Rename	BW	Transferring the request info to the new status management			
☒	☒	☒	☒	Import	BW	Retrieve Data			
☒	☒	☒	☒	Finalization	BW	Unlock Loading and Data Target Changes			

The log message at the end of the run summarizes how many persisted objects (InfoCubes and DataStore Objects), InfoObjects, virtual objects (MultiProvider, InfoSets, CompositeProviders), queries, and other objects were included in the transfer.

Execution Identifier	Ty.	Message Text
2017-11-23 / 23:35:02	2/2	(0 CUBE/ODSO/ADSO, 0 IOB), 1 MPRO/HCPRI/SET, 0 ELEM, 1 others) (0.005% of system)

You can find the description of the individual tasks in task list SAP_BW4_TRANSFER_INPLACE (transaction STC01).

→ Caution

Do **not** skip or cancel a scope transfer, which stops in the middle of a task list run, **when changes have already happened**. If you do, the system could easily get into an inconsistent state.

If a scope transfer stops, look into the details of the error messages. For example, for transformations there are scenarios, where you have to adapt the transformation manually. After you have adjusted and activated the transformation (or corresponding routines), you can continue the task list run. Furthermore, you should try to restart the failed tasks, if it failed one time, as it is sometimes only a temporary problem.

If the task list run stops and it is **not** possible to adapt the object or correct the error, contact [SAP Product Support](#) (component BW-BW4-CNV-IPL). If a task list run is in such state, for example for DataStore objects (classic) or InfoCubes, there is no way back and the task list run must be continued until the end. Please do **not** lock or delete the task list run; do **not** delete or modify any SAP database tables manually; do **not** delete any of the involved SAP BW objects; do **not** release any involved transport requests. SAP Product Support will troubleshoot the issue and provide appropriate guidance to complete the task list run.

Next Steps

You can monitor previous task list runs using the Task List Monitor (transaction STC02).

Task List Runs

126 Task List Runs found

S.	Fi.	Task List Run	Task List	Task List Variant	Created by	Creation Time	Changed by	Changing Time
		SAP_BW4_TRANSFER_INPLACE_20171114171257889	SAP_BW4_TRANSFER_INPLACE		HBD361_323	2017-11-14 / 18:12:57	HBD361_323	2017-11-14 / 18:19:03
		SAP_BW4_TRANSFER_INPLACE_20171114171221769	SAP_BW4_TRANSFER_INPLACE		HBD361_317	2017-11-14 / 18:12:21	HBD361_317	2017-11-14 / 18:17:03
		SAP_BW4_TRANSFER_INPLACE_20171114171104405	SAP_BW4_TRANSFER_INPLACE		HBD361_332	2017-11-14 / 18:11:04	HBD361_332	2017-11-14 / 18:15:19
		SAP_BW4_TRANSFER_INPLACE_20171114170338979	SAP_BW4_TRANSFER_INPLACE		HBD361_350	2017-11-14 / 18:03:38	HBD361_350	2017-11-14 / 18:08:39
		SAP_BW4_TRANSFER_INPLACE_20171114170334841	SAP_BW4_TRANSFER_INPLACE		HBD361_305	2017-11-14 / 18:03:34	HBD361_305	2017-11-14 / 18:22:48
		SAP_BW4_TRANSFER_INPLACE_20171114170200306	SAP_BW4_TRANSFER_INPLACE		HBD361_322	2017-11-14 / 18:02:00	HBD361_322	2017-11-14 / 18:16:20
		SAP_BW4_TRANSFER_INPLACE_20171114170123351	SAP_BW4_TRANSFER_INPLACE		HBD361_337	2017-11-14 / 18:01:23	HBD361_337	2017-11-14 / 18:09:14
		SAP_BW4_TRANSFER_INPLACE_20171114165947622	SAP_BW4_TRANSFER_INPLACE		HBD361_312	2017-11-14 / 17:59:47	HBD361_312	2017-11-14 / 18:08:25
		SAP_BW4_TRANSFER_INPLACE_20171114165803388	SAP_BW4_TRANSFER_INPLACE		HBD361_337	2017-11-14 / 17:58:03	HBD361_337	2017-11-14 / 17:59:04
		SAP_BW4_TRANSFER_INPLACE_20171114164815822	SAP_BW4_TRANSFER_INPLACE		HBD361_343	2017-11-14 / 17:48:15	HBD361_343	2017-11-14 / 17:53:24
		SAP_BW4_TRANSFER_INPLACE_20171114164707988	SAP_BW4_TRANSFER_INPLACE		HBD361_325	2017-11-14 / 17:47:07	HBD361_325	2017-11-14 / 17:53:55
		SAP_BW4_TRANSFER_INPLACE_20171114163309570	SAP_BW4_TRANSFER_INPLACE		HBD361_332	2017-11-14 / 17:33:09	HBD361_332	2017-11-14 / 17:44:10
		SAP_BW4_TRANSFER_INPLACE_20171109152552601	SAP_BW4_TRANSFER_INPLACE		SAUERKL	2017-11-09 / 16:25:52	SAUERKL	2017-11-09 / 16:26:27
		SAP_BW4_TRANSFER_INPLACE_20171109151705204	SAP_BW4_TRANSFER_INPLACE		SAUERKL	2017-11-09 / 16:17:05	SAUERKL	2017-11-09 / 16:23:50
		SAP_BW4_TRANSFER_INPLACE_20171109150235051	SAP_BW4_TRANSFER_INPLACE		SAUERKL	2017-11-09 / 16:02:35	SAUERKL	2017-11-09 / 16:05:21
		SAP_BW4_TRANSFER_INPLACE_20171108151311099	SAP_BW4_TRANSFER_INPLACE		WITZELG	2017-11-08 / 16:13:11	BERNARDMA	2017-11-23 / 23:36:55
		SAP_BW4_TRANSFER_INPLACE_20171108145848718	SAP_BW4_TRANSFER_INPLACE		WITZELG	2017-11-08 / 15:58:48	WITZELG	2017-11-08 / 16:31:09
		SAP_BW4_TRANSFER_INPLACE_2017102608111472	SAP_BW4_TRANSFER_INPLACE		HBD361_407	2017-10-26 / 10:11:11	HBD361_407	2017-10-26 / 10:16:04
		SAP_BW4_TRANSFER_INPLACE_20171026080908724	SAP_BW4_TRANSFER_INPLACE		HBD361_426	2017-10-26 / 10:09:08	HBD361_426	2017-10-26 / 10:10:08
		SAP_BW4_TRANSFER_INPLACE_20171026080445692	SAP_BW4_TRANSFER_INPLACE		HBD361_423	2017-10-26 / 10:04:45	HBD361_423	2017-10-26 / 10:07:03

4.8.3 Troubleshooting Scope Transfers

The scope transfer requires accurate, consistent configuration and business data in order to perform its tasks properly. If preconditions are not fulfilled, error messages will be raised. The following list shows some of the issue that can occur and provides options for resolution.

Type of Issue	Potential Solution
Missing Objects	Display details of error message for technical names of objects. Use RSA1 search feature to check if object exists. If inactive, activate the object. If object is missing and not required, run task list RS_B4H_CHK_CLEANUP to repair object cross-reference. If object is required, try transport it from original system.
Inconsistent Master or Transaction Data	Display details of error message for technical names of objects. Run consistency checks in transaction RSRV and repair any issues found.
Inconsistent Configuration	Run task list RS_B4H_CHK_CLEANUP to repair inconsistencies. Check involved objects in the corresponding object maintenance in transaction RSA1 or SAP BW Modeling Tools.

4.8.4 Statistics for Scope Transfer

The statistic framework writes detailed runtime information of scope transfers into table RSB4H_STAT. This table stores the current data. In addition, the table RSB4H_STAT_AGGR exists, which contains aggregated information (e.g. without user information) but has the SYSTEMID as GUID in as additional column. A third table is the RSB4H_STATSYS, which contains general system information and the SYSTEMID as key. Via the SYSTEMID a link to

RSB4H_STAT_AGGR is possible. Furthermore, this table contains the columns EXTERNAL SYSTEM, to distinguish between own and uploaded data.

The Precheck collects his own data in table RSB4H_RCRDCOUNT (not included in general statistic framework except deletion).

Table RSB4H_STATSYS:

Column	Description
SYSTEMID	GUID for System
APP_NUMBER	Number of Application Servers
APP_MACHTYPE	Machine Type of Application Server
APP_OSTYPE	OS of Application Server
APP_NUMBER_CPU	Number of CPU for all Application Servers
APP_MEM	Memory of all Application Servers
APP_NUMBER_WP_DIA	Number of Dialogue Work Processes of all Application Servers
APP_NUMBER_WP_BGD	Number of Background Work Processes of all Application Servers
DBSYS	Database System
DB_NUMBER_HOSTS	HANA: Number of Hosts
DB_NUMBER_CPU_CORES	HANA: Number of CPU Cores for all Hosts
DB_MEMORY_SIZE_GB	HANA: Memory Size for all Hosts
DB_CPU_SUMMARY_MASTER	HANA: CPU Summary for Master
DB_CPU_MODEL_MASTER	HANA: CPU Model for Master
DB_HW_MODEL_MASTER	HANA: Hardware Model for Master
EXTERNAL_SYSTEM	Is Data from External System

The maintenance and display of the statistics for scope transfers is done with report RSB4H_STAT_MAINTAIN. The report has the following features:

Move Statistic Data

Moves the statistics data from table RSB4H_STAT in aggregated form to table RSB4H_STAT_AGGR. Always only data from already finalized task list runs is moved. As additional parameter it is possible to decide which is the date, from which the move starts.

Download/Upload Statistic Data

The download and upload provide the option to download the statistical data in table RSB4H_STAT_AGGR to a file, so that it can be uploaded in other systems. External data in the same format can be uploaded to table RSB4H_STAT_AGGR from a file via the upload button.

Delete Statistic Data

Delete the statistical data from all statistic tables. Optionally, only the external data can be deleted.

Reporting on Statistic Data

The reporting on statistic data is only possible with an In-place Conversion as it is implemented with CDS views. With a Remote Conversion, a view of the data is possible in SE11 only.

- Reporting on the data of table RSB4H_STAT is possible with the Query 2CRSB4H_STATCQRY.
- Reporting on the data of both tables RSB4H_STAT and RSB4H_STAT_AGGR is possible with Query 2CRSB4H_STATUQRY.

4.9 Executing Transfers of Standard Authorizations

4.9.1 Execution Mode

After the successful transfer of objects using the Scope Transfer Tool, the transfer of standard authorizations must be completed using a delta run.

4.9.2 Transfer Process (Delta Run)

The transfer of authorizations is performed as follows:

1. Start the Transfer Cockpit (transaction RSB4HCONV)
2. Select "Transfer Standard Authorizations (delta run)"
3. Display the Run ID
4. Execute the delta run.

The system will retrieve the details of related scope transfer runs and scan the original roles for authorization objects with defined "adjust" or "replace" rules. Authorization objects with "replace" rule are checked for conflicts. Then the roles copies are adjusted according to the defined rules.

Transfer of authorizations TEST_CONV_AUTH

Add roles
 Initial Run
 Delta Run
 Generate
 Settings

Overview	Added	Simulated	Delta applied	Converted
Roles	1	1	1	0
Objects	4	4	4	0

Authorizations	Status	Status	Status	Cnv. Name	Change	Extended	Added	Treatment
Authorization Conversion								
TEST_CONV_AUTH				TEST_CONV_AUTH_BW4H				

Old Objects:

Object	Field name	Value	Value
RSANPR	ACTVT	*	
RSANPR	RSAN_APPL	*	
RSANPR	RSAN_PR	*	
S_RS_COMP	ACTVT	*	
S_RS_COMP	RSINFOAREA	*	
S_RS_COMP	RSINFOCUBE	*	
S_RS_COMP	RSZCOMPID	*	
S_RS_COMP	RSZCOMPTP	*	
S_RS_DMOD	ACTVT	*	
S_RS_DMOD	RSDATAFL	*	
S_RS_DMOD	RSDFOBJ	*	
S_RS_DMOD	RSINFOAREA	*	
S_RS_ICUBE	ACTVT	*	
S_RS_ICUBE	RSICUBEOBJ	*	
S_RS_ICUBE	RSINFOAREA	*	
S_RS_ICUBE	RSINFOCUBE	*	

New Objects:

Object	Field name	Value	Value
S_RS_COMP	RSZCOMPID	*	
S_RS_COMP	ACTVT	*	
S_RS_DMOD	ACTVT	*	
S_RS_DMOD	RSDATAFL	*	
S_RS_DMOD	RSDFOBJ	*	
S_RS_DMOD	RSINFOAREA	*	
S_RS_ADSO	RSINFOAREA	*	
S_RS_ADSO	RSOADSOWM	*	
S_RS_ADSO	RSOADSOP	*	
S_RS_ADSO	ACTVT	*	
S_RS_HCPR	ACTVT	*	
S_RS_HCPR	RSHCPR	C2_IF31H	
S_RS_HCPR	RSHCPR	C3_IF31H	
S_RS_HCPR	RSHCPR	C4_IF31H	
S_RS_HCPR	RSHCPR	CF_IF31H	
S_RS_HCPR	RSHCPROBJ	*	

5. Review the prepared mapped roles and authorizations¹³

Note:

Up to now, no of the security settings i.e. roles or role assignments have been changed.

6. If ok, select "Generate Target Roles"

The system will generate the new roles and offers the possibility assign them to the same users as the corresponding original roles.

¹³ The conversion of authorization roles only considers the exchange of authorization objects. Obsolete entries, e. g. obsolete transaction codes are not removed.

APD Node	Supported	Transferred To	Comments
Data Sources			
 Characteristic	Yes	Reuse Existing InfoObject	InfoObject must exist in active version
 InfoProvider	With Restrictions	Reuse Existing InfoProvider (or Transfer to Advanced DataStore Object)	If existing InfoProvider is used it must exist in the system in active version and must be usable in the DTP as source object.
 Query	With Restrictions	Used as Query Provider	- Length of query technical name must not exceed 20 - Query must be set as InfoProvider (transaction RSRT) - Variants for the query are ignored
 File	With Restrictions	File System Data Source	- Header row of the file is always ignored - Only file on application server can be used - Data format "CSV" file is expected - Data format "XLS" is not supported
 Database Table	Yes	ODP Data Source based on CDS View	Database table must exist in active version
 Analysis Authorizations	No	n/a	
Transformations			
 Filter	With Restrictions	Filter of DTP	Filtering on key figure fields is not supported
 Aggregate Data	With Restrictions	CompositeProvider	- Supported aggregations types in CompositeProvider are a summation, minimum, maximum and no aggregation (X = if more than one value unequal to 0 exists). - Unsupported aggregation types are ignored and fields on which the unsupported aggregation should be applied are excluded from the output structure of the CompositeProviders.
 Connection (Join)	With Restrictions	CompositeProvider	- Full outer join is not supported in CompositeProvider, left outer join will be used instead. - Join conditions on key figure fields are not supported in CompositeProvider. Such condition used in APD join will not be used in CompositeProvider. When all join conditions are on key figures, CompositeProvider cannot be generated. - Both fields from join conditions must be mapped to the same output field of CompositeProvider: - In APD join was possible to keep both fields in output separately. In such case, both fields will be merged into the one output field in CompositeProvider. Exception: Unit and currency fields can be in output twice, even though a join condition exists on them. - Join condition fields must be selected for output. Otherwise, a new output field is added to CompositeProvider and both fields are mapped to that field. - If a field mapped to output is Key Figure and appropriate unit/currency field is not mapped to output, InfoObject information is lost.
 Merge (Union)	With Restrictions	CompositeProvider	- Fields from both sources are mapped to the output the same way as when a CompositeProvider is created in the SAP BW Modelling Tools. Identical fields from both PartProviders are mapped to the same output field. - If a field mapped to the output is a key figure and appropriate unit/currency field is not mapped to output, the InfoObject information is lost.

 Projection	Yes	Transformation	Field mapping corresponds to the projection
 Sort	With Restrictions	Semantic Group of DTP	- Sorting order is ignored - As sorting is transformed into the Semantic Group setting of the DTP, data will not be fully sorted. User needs to adjust start/end routine of appropriate transformation manually if exact order of records is needed.
 Formula	Yes	Transformation	All fields from the data source are used as input to the created transformation formula.
 ABAP Routine	With Restrictions	Transformation	- ABAP routines are ignored and mapped to 1:1 transformations - The ABAP routine code from APD is added to the transformation <i>end routine</i> but it is commented out.
 List into Data Record	No	n/a	
 Data Record into List	No	n/a	
 Linear Regression	No	n/a	
 ABC Classification	No	n/a	
 Predict with Weight Scoring	No	n/a	
 Predict with Regression Analysis	No	n/a	
 Predict with Decision Tree	No	n/a	
 Predict with Cluster Model	No	n/a	
 Predict with 3 rd Party Data Mining Model	No	n/a	
Data Targets			
 Characteristic	Yes	Reuse existing InfoObject	
 DataStore Object	With Restrictions	Reuse Existing InfoProvider (or Transfer to Advanced DataStore Object)	- If existing InfoProvider is used following restrictions apply - Write-Optimized DSO can be used - Direct update ADSOs can be used - If you decide to use different existing InfoProvider than the one that was used in APD (no generation), then you must ensure that fields of such InfoProvider are same as the original one (all relationships in APD are defined based on original InfoProvider) - When APD metadata is transported into the target system during a remote conversion, the scope on target system is checked. If original existing InfoProvider from APD had been handled by a scope transfer, the target InfoProvider from the scope is used instead of original one.
 File	With Restrictions	OpenHub Destination	- Only application server files can be used - If no logical file name is used, then the specified file in APD node on application server will not be used. Instead, a new file will be generated for OpenHub automatically. - Data format "CSV" file is expected - Data format "XLS" is not supported - The setting "Insert Header Row with Field Names in the First Row of the File" is ignored

			since OpenHub destination files cannot contain any header row. Instead, another file with name S_<OPENHUB_FILENAME> is created automatically in destination location containing the field descriptions.
 Analytical Index	With Restrictions	DataStore Object (Advanced)	At least one character-like dimension field must exist in the Analytical Index since the generated ADSO cannot use string fields as key fields.
 CRM Attributes	No	n/a	
 Train Decision Tree	No	n/a	
 Train Cluster Model	No	n/a	
 Train Association Analysis Model	No	n/a	
 Train Scoring Model	No	n/a	
 Train 3 rd Party Data Mining Model	No	n/a	

Each APD process is converted into a process chain that corresponds to the data flow in APD. When the process chain is generated, all other existing process chains in the system are analyzed. If any of the analyzed process chains uses an APD process variant that is being converted, this APD process variant is replaced by the generated process chain variant. If the APD process chain variants are already replaced by a dummy process chain by executing a scope transfer, this dummy process chain will be adjusted instead of generation of new process chain.

4.10.2 General Restrictions

- All transferred objects are generated as local objects (\$TMP package) and therefore not added any transports. They can be added to a transport request after the generation like other SAP BW objects.
- The order of result rows generated by APD can differ from the order of results rows of the corresponding process chain. The final sort order depends on multiple factors like the structure of the analysis process, database behavior, etc. The APD "Sort Transformation" node does not guarantee correct sorting of results (see "Transformation – Sort" above).

4.10.3 Mapping Rules

Mappings defined in APD process between data source and data target nodes influence the rules of generated transformation to the appropriate target BW object. Mapping rules have highest priority for defining the field rules of target object. If in the APD process a formula node exists that calculates field value, but the calculate field is connected to the data target with the mapping rule "constant", then the resulting transformation rule will be constant, and the formula will not be used.

Mapping types that can be transferred:

- Constant
- Initial value
- Copy source value

Not supported mapping types:

- Call class method
- Convert month to date
- Additional DataStore objects (advanced)

4.10.4 Additional DataStore Objects

There are cases when additional DataStore objects (advanced) are created in the generated BW process chain on top of BW objects created as replacements for APD nodes.

Scenarios when additional DataStore objects (advanced) are created:

- Two transformation APD nodes of same type are never added to the same resulting transformation. If APD node should be added to transformation, where an APD node of the same type was already assigned, a new transformation is created and an additional DataStore objects (advanced) is created between.
- Before Join and Union APD nodes that are transformed into CompositeProvider, additional DataStore objects (advanced) are created in these cases:
 - Transformation APD node is preceding the Join/Union
 - Query data source APD node is preceding the Join/Union. In this case additional transformation is created between Query provider and additional ADSO.
 - There are another two other Join/Union APD nodes directly connected before the Join/Union node

The additional DataStore objects (advanced) have following restrictions:

- Always created as Direct Update DataStore objects (advanced)
- At least one character-like field must be present for the key definition
- Additional DataStore objects (advanced) are not mapped to any APD node directly. Therefore, their fields are derived from other APD nodes. If a derived field of additional DataStore objects (advanced) is key figure and appropriate unit/currency field is not present in the DataStore objects (advanced), the InfoObject information is removed.

4.10.5 Analyzing APD Processes

For in-place as well as remote conversion, the transfer begins with an analysis of all APD processes found in the system.

Procedure

1. Start the APD Transfer Tool (transaction RSB4HAPD).
2. The system will display a list of all existing APD processes. It is updated every time you start the tool.



Analysis Process	Transfer Category	Active Ver. Exists	Unsupported Objects	Total Usage	Last Month Usage	Used in PC	Data Sources Count	Data Transf. Count	Analytical Object	Routine Object	Additional Providers	Query Compatible
Analysis Process												
Lean BW autotests dedica												
Thomas' stuff												
ZHO_TEST												
Join Analysis - AnalyticInde												
Pingground												
ODBMAN												
FMA												
GuidosTests												
Scenario SH												
Bhavani												
DB_TEST	Manual Adjustment	No	No	0	0	No	1	1	No	Yes	No	Yes
db_test_abap_routine	Incorrect Structure	No	No	0	0	No	0	0	No	No	No	No
db_test	Supported by Transfer ...	Yes	No	24	0	No	1	1	No	No	No	Yes
DB_TEST_AGAIN	Supported by Transfer ...	Yes	No	16	0	No	1	1	No	No	No	Yes
most simple	Manual Adjustment	Yes	No	1	1	No	1	1	No	No	No	Yes
most simple copy 1	Manual Adjustment	Yes	No	0	0	No	1	1	No	No	No	Yes
OHMG_APA												

3. Select  to trigger a detailed analysis of all APD processes. The analysis job is executed as a background process. By default, the job analyzes only APD processes that were not analyzed yet. You can rerun the analysis for all - also already analyzed - APD processes by selecting "Run full system analysis..." in displayed dialog box. A rerun of the analysis clears all previous results and should only be executed, if the APD process was changed. As a result of the analysis, statistical information is displayed for each APD process.
4. In overview screen, you see statistical data for all analyzed APD processes. Only APD process with assigned transfer category "Supported by Transfer Tool" or "Manual Adjustment" can be converted using the tool. All other APD processes must be modified (and analyzed again) or converted manually.
5. You can continue with conversion by double clicking on an analyzed APD process (see next section).

Additional Functions

Function	Description
 Refresh	Refresh list of APD processes
 Display Analysis Log	Display job log of executed analyses
 Display Pre-check Log	Display information about APD in log format

 Transfer APD Processes	Transfer APD analysis result to different system. The APD Transfer Tool must be present on the target system and a valid RFC destination of target system must be specified in the popup dialog.
Double Click on APD Process	Displays APD process in detail view. Only analyzed APD processes can be displayed. Only APD processes from category "Supported ...", "Manual Redesign" can be reviewed.
Context Menu for APD Process	Execute analysis for just one selected APD process

Analysis Results

Criteria	Description
Transfer Category	Category of APD after successful analysis: 1. Supported by Transfer Tool Can be automatically transferred to a process chain using the tool 2. Manual Adjustment Changes to some APD nodes (original objects) are needed before transfer 3. Manual Redesign APD process contains unsupported APD nodes and cannot be transferred unless redesigned 4. Incorrect Structure APD process does not have correct structure and could not be analyzed
Active Version Exists	Does an active version of APD process exists?
Unsupported Objects	Do unsupported APD nodes exist in the APD process?
Total Usage	Number of recorded executions of the APD process
Last Month Usage	Number of recorded executions of the APD process during last month period.
Used in PC	Is the APD process used as variant in any process chain?
Data Sources Count	Number of APD nodes of type "data source" in the APD process

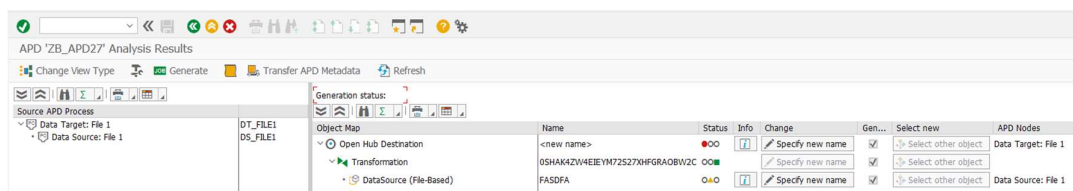
Data Transformation Count	Number of APD nodes of type "transformation" in the APD process.
Analytical Object	Does the APD process contain any "analytical" nodes (e.g. train scoring model)?
Routine Object	Does the APD process contain at least one "routine" node?
Additional Providers	Will there be any additional ADSOs created by the transfer process?
Query Compatible	Are the queries used in "data sources" defined as InfoProviders?
Local File Accessed	Are local files (i.e. files not on the application server) used in the APD process?

4.10.6 Executing the Transfers of APD Processes

Once an APD process has been analyzed and categorized as "Supported by the Transfer Tool", you can start the transfer to a process chains from the detailed view.

Procedure

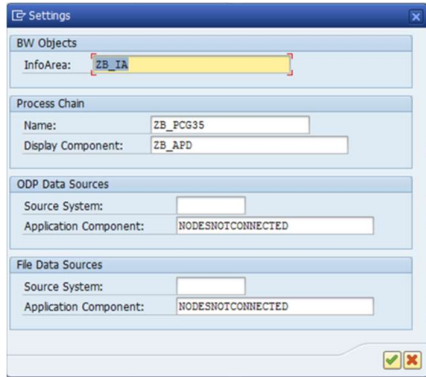
1. Start the APD Transfer Tool (transaction RSB4HAPD).
2. Double-click on the APD you want to transfer.



Detail view has two parts:

- Source APD process (left side), which displays the structure of original APD process
 - Target process chain (right side), which shows the proposed data flow and objects resulting from APD process transfer.
3. Next to "Generation Status" the system displays, if the APD has been transferred or not.

Select  to maintain the settings required for the transfer:



Setting	Description
InfoArea	InfoArea where transferred objects will be saved
Process Chain	Name of target process chain for data flow. If APD process variants in existing process chains were already replaced by a scope transfer with “dummy” variants, the process chain setting is ignored or can be left empty since the “dummy” process chain will be filled based on target data flow.
Display Component	Display component for the target process chain
ODP Source System	Source System for which ODP Data Sources will be generated (only visible, if an ODP Data Source is proposed for target process chain)
ODP Application Component	Application component of Source System for which ODP Data Sources will be generated (only visible, if an ODP Data Source is proposed for target process chain)
File Source System	Source System for which File Data Sources will be generated (only visible, if a File Data Source is proposed for target process chain).
File Application Component	Application component of Source System for which File Data Sources will be generated (only visible, if a File Data Source is proposed for target process chain)
Delete Source APD After Successful Generation	If turned on, the original APD will be deleted when the transfer to a process chain was completed successfully

4. Select  **Generate** to start the transfer.

The transfer job is executed in background process.

5. Detail information about the execution of the transfer can be found in log accessible through "Show Generation Log" button.

Additional Functions

Function	Description
 Refresh	Refresh the objects of the proposed process chain
 Change View Type	Switch display between tree view and network view
 Display Transfer Log	Display job log of executed transfer
 Transfer APD Process	Transfer selected APD process to different system. The APD Transfer Tool must be present on the target system and a valid RFC destination of target system must be specified in the popup dialog.
 Delete APD Process	Delete the original APD process after a successful transfer. The APD process should be deleted only when you check the generated process chain and you do not need APD process any more.

Object Map Information

Column	Description
Object Type	Type of objects to be used/generated during the transfer
Name	Technical name of objects to be used/generated during the transfer
Status	Object status. All objects of proposed process chain must have status "green" or "yellow" before transfer can be executed. "Red" - Object is not usable for transfer or not fully defined "Yellow" - Not all original APD node properties replaced by this object are supported "Green" - Object supported and ready for transfer

 Info	Display information of object status (in network view, you can display the information via the context menu)
Change	Specify a new technical name for the object (in network view, you can set the new name via the context menu)
Generate	Shows, if existing object should be used or new should be generated (if applicable)
Select New	Select different existing object than the original APD object. Only applicable for objects that are not generated (in network view, you can select a different object via the context menu)
APD Nodes	List of APD nodes from the original APD process that are replaced by this object

→ Note

The APD Transfer Tool can also be used during a remote conversion. For a remote conversion, the APD analysis results and metadata must be transported to the target SAP BW/4HANA system first, and then transferred to corresponding process chains. For more details, see the chapter on remote conversion).

4.11 Object Deletion Using Clean-up Tools

Objects that are not compatible with SAP BW/4HANA and are not required anymore, need to be deleted from the system so they do not block a system conversion (or switching of operating modes).

4.11.1 Deleting SAP BW Technical Content

The SAP BW technical content – including the SAP BW Administration Cockpit – is not compatible with SAP BW/4HANA (OTCA* and OTCT* namespaces). It is obsolete and replaced by real-time views and therefore needs to be deleted from the SAP BW system (see SAP Note [2467074](#)).

Even in an empty SAP BW system, some of the technical content is active by default. Sometimes depending on the scope of the system also the CATT objects are activated.

If you like to keep your historical SAP BW statistic data, we recommend to continue running the existing extraction and persistency into the OTCT_C* InfoCubes as long as possible. Transfer the persistency of the statistic model as the final scope (shortly before switching to B4H mode). An option to transfer OLAP statistics to the new CDS-based model is planned for a future version of the Transfer Cockpit.

→ Note

Deleting the SAP BW technical content can have a significant impact of existing scopes in your system, as the objects might be used in several customer InfoProviders without knowing it. Hence InfoObjects from technical content (OTCA* and OTCT*) will **not** be deleted with this program.

Procedure

1. Start the Transfer Cockpit (transaction RSB4HCONV).
2. Select "Delete Technical Content"¹⁴.
3. Select "Simulate". You have the option to include InfoCubes, DataStore Objects, and MultiProviders from the technical content.



If you want to keep InfoCubes, DataStore Objects, and MultiProviders from the technical content (because they contain the history of BW runtime statistics), then you can use the Transfer Cockpit to convert the objects to DataStore Objects (advanced) and CompositeProviders.

4. Execute the program.
5. The system will display a list of objects to be deleted.
6. If you are ok with the list, run the program again with option "Execute" to delete the objects.

4.11.2 Deleting SAP BW Objects

If objects are not required anymore, you can use a program to delete them from your SAP BW system.

→ Caution

Be careful using this program as you don't want to delete objects that you still need. There is **no** undo function. It is therefore recommended to have a current system backup, before performing extensive deletions.

¹⁴ Program RS_DELETE_TECHNICAL_CONTENT

Do **not** delete the Myself Source System yourself. The SAP BW system will **not** function without this source system! The Myself Source System will be deleted automatically when switching to Ready-for-Conversion mode.

Neither deleting objects manually nor using the delete program mentioned below have a connection to the transport system. To delete objects in test or production systems therefore requires that objects are collected into a transport request **before** they are deleted.

Prerequisites

Certain object collectors depend on the Source System assignment for the user executing the deletion, for example when trying to delete 3.x DataSources. Check the correct configuration in the Data Warehousing Workbench > Transport Connection (transaction RSOR) > Edit > Source System Assignment.

Implement SAP Note [2705147](#) to get the latest version of program RS_DELETE_TLOGO and support deletion of all object types.

Procedure

1. Run program RS_DELETE_TLOGO.
2. Select, which objects should be deleted. For the initial run, it's recommended to **un-select** "Really Delete Objects?".

Delete BW Metadata

Editing

- ☒ Only Objects Not Used
- ☒ Display Objects Beforehand
- ☐ Really Delete Objects?

☐ All Objects

☐ Objects from Request

Object Selection Using Request

Request

☒ Choose Objects Manually

Manual Object Selection

Package to

☐ Check Packages for D Version

Currency Translation Type (CTRT)		to		
Quantity Conversion Type (UOMT)		to		
InfoArea (AREA)		to		
Application (APCO)		to		
Routine (ROUT)		to		
BW Formula (RSFO)		to		
InfoObject (IOBJ)		to		
(HIER)		to		
InfoObject Catalog (IOBC)		to		
DataStore Object (classic) (ODSO)		to		

3. The system checks which objects are still in use and displays them in a list. If you want to delete these objects as well, you will have to unselect "Only Objects Not Used".
4. The system will display the list of objects to be deleted.

5. If you are ok with the list, run the program again with option “Really Delete Objects?” turned on.

4.11.3 Deleting SAP BW Queries

SAP BW Queries that are not required anymore can be deleted using transaction RSZDELETE.

- Transaction RSZDELETE to remove 3.x Queries which are only available in the M version
- Transaction RSDCUBE to remove fractions of old aggregates which are not in use

4.12 Custom Code Adjustments

For more information, see details related to custom code analysis and necessary adjustments when converting to SAP BW/4HANA, see SAP Note [2462639](#).

4.13 Technical System Conversion

→ Caution

Before starting the technical system conversion, please be sure that the SAP Note [2719160](#) is installed.

→ Caution

If BPC Add-On is used in the SAP BW System and You want to upgrade it to **BPC/4HANA** during the conversion, please observe the SAP Note [2823306](#)

→ Caution

If SEM-BCS Add-On is used in the SAP BW System and You want to upgrade it to **BCS4HANA** during the conversion, please observe the SAP Note [2651241](#)

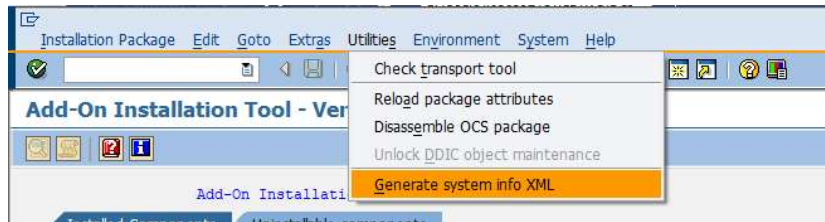
4.13.1 Download Software using Maintenance Planner

You have to complete a maintenance task transaction to create the stack.xml file and download all required software packages for SAP BW/4HANA.

Prerequisites

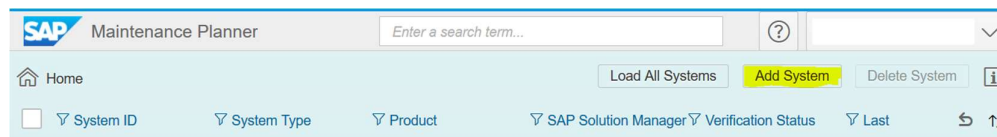
You have synchronized and verified your system information with the SAP Support Portal (see chapter 4.2).

Download locally the System Info XML file from your system by using transaction “SAINT”.

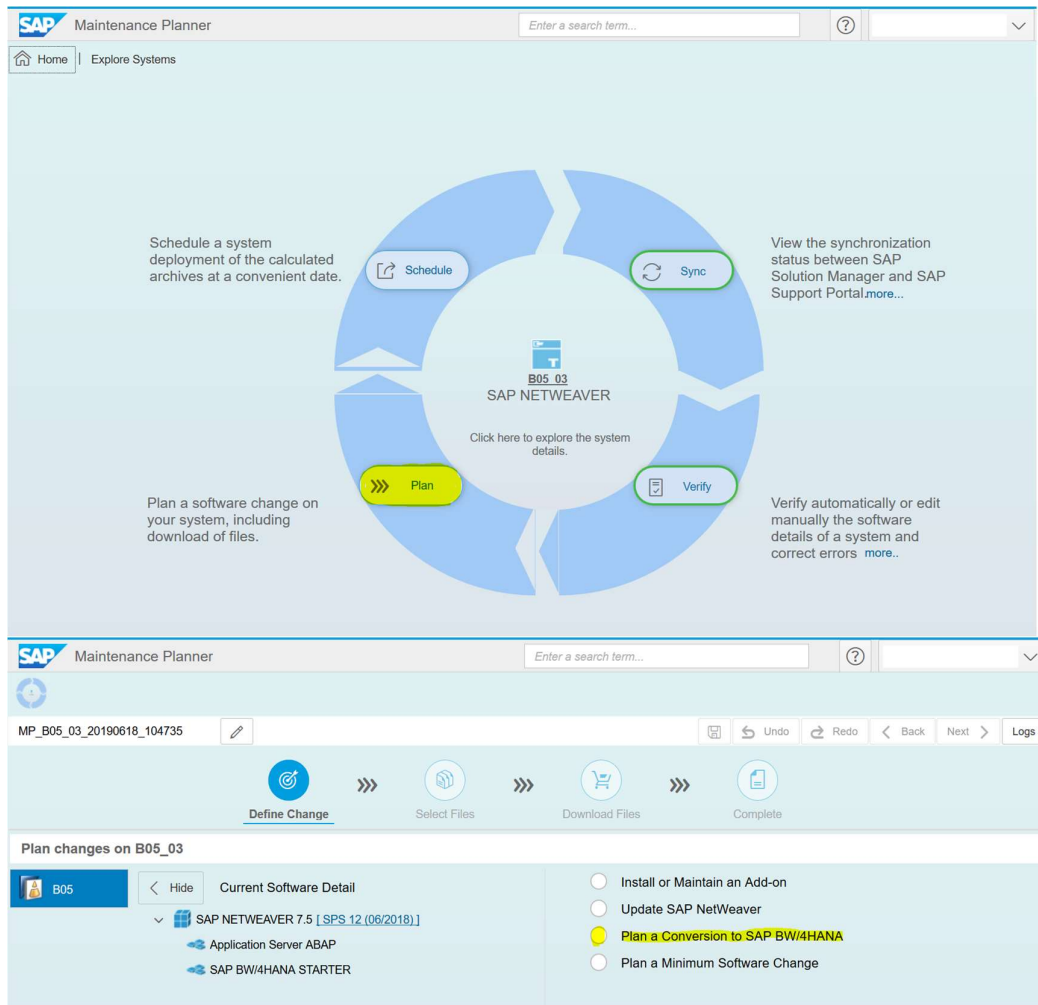


Procedure

1. Start the [Maintenance Planner](#).
2. Add a new system and upload your System Info XML file and enter a system ID,



3. Enter the system ID into the search box and select your SAP BW system from the search results.
4. Select “Plan” to begin a new maintenance transaction.



The Maintenance Planning will display the current software details. This must include SAP NetWeaver 7.5 with Application Server ABAP, Business Intelligence, and the SAP BW/4HANA Starter add-on for a conversion to be possible.

5. Select "Plan a Conversion to SAP BW/4HANA" and "SAP BW/4HANA 2021". Select your target Support Package .

-
6. Select SAP BW/4HANA Server, Content Basis, and Content and confirm the selection.

You have to select at least a support package equivalent to your current SAP BW support package level (see SAP Note [3100794 - Release Information/Restrictions Note for SAP BW/4HANA 2021](#)). It is highly recommended to choose the most recent available support package.

→ Tip

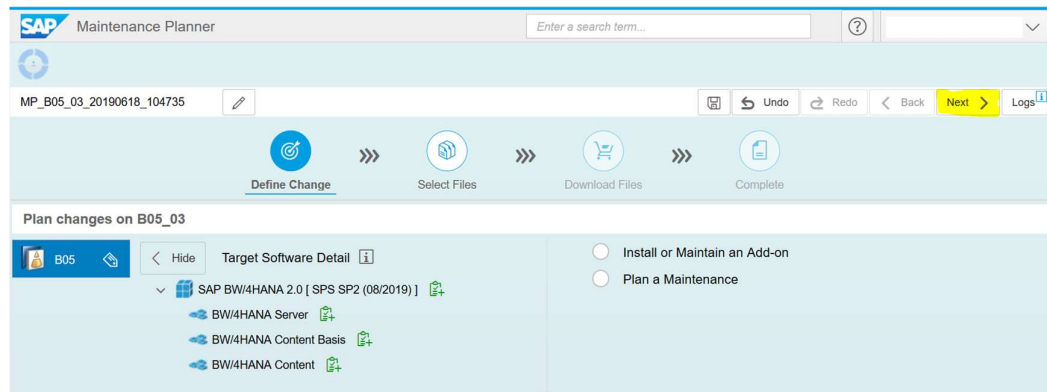
You can display the Release Information SAP Note for the selected support package stack by clicking on the “Information” icon.

7. If you want to include an add-on for SAP BW/4HANA – like SAP BPC -, then select “Install or Maintain an Add-on” (optional).

→ Note

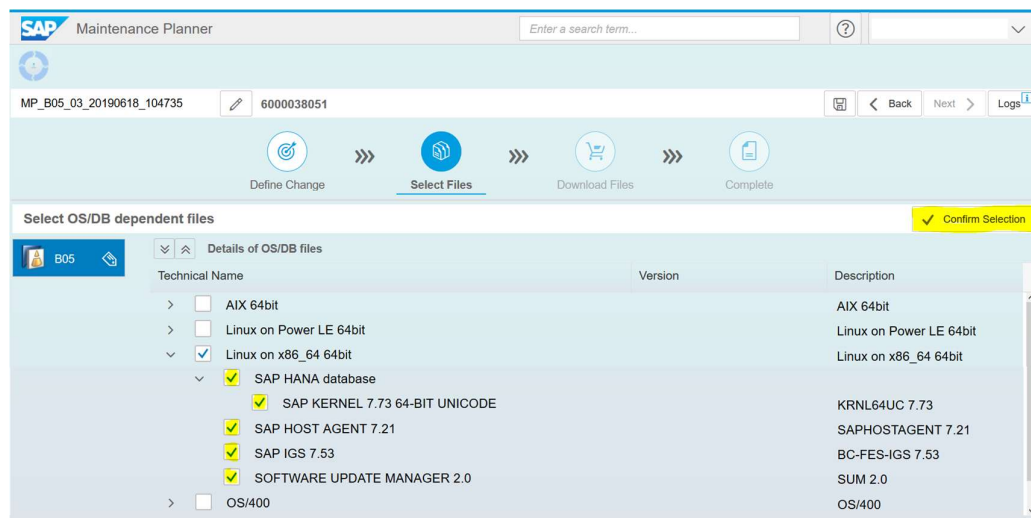
During the system conversion, the system will check if any BPC capabilities have been used. If that's the case, the SAP BPC 11.1 add-on must be included, or the conversion will fail with an error.

8. If no add-ons are required, select “Next”.

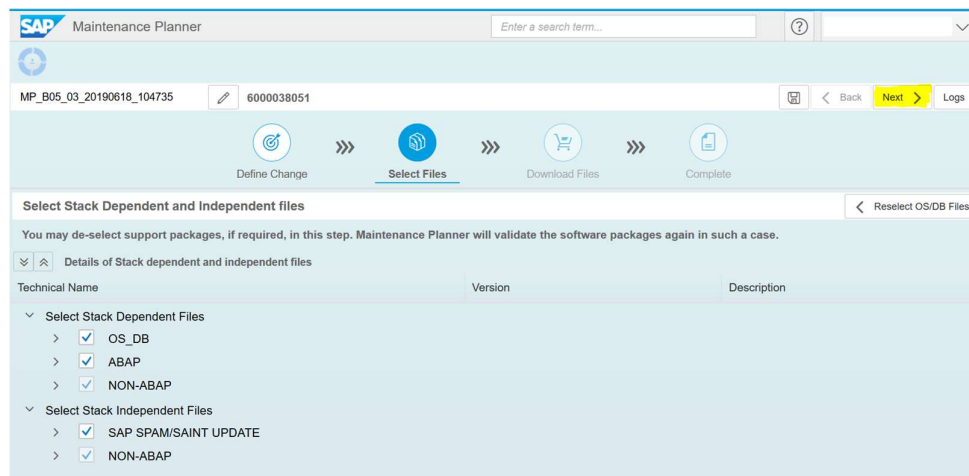


9. Select the dependent OS/DB files. Also, select the Operating System and SAP HANA database kernel (SAP Kernel 7.73 64-BIT recommended) and confirm the selection.

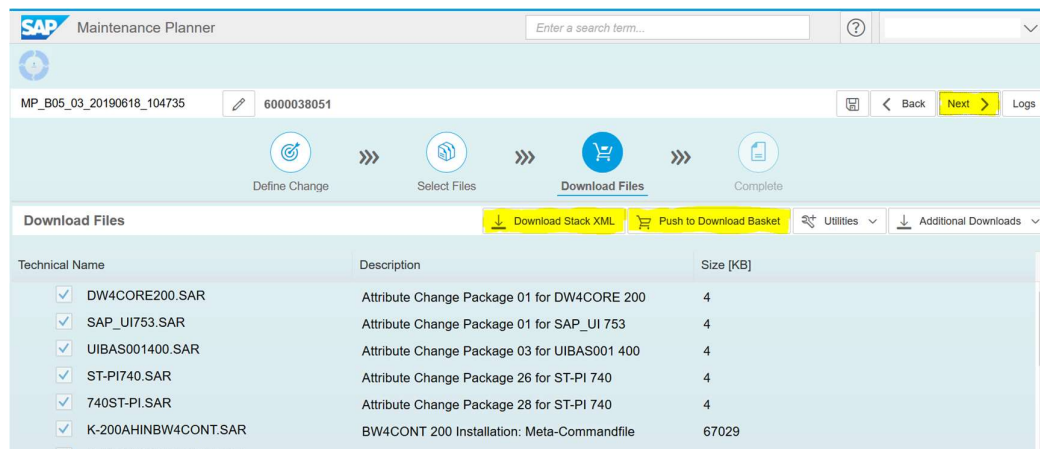
It's recommended to include SAP Host Agent, SAP IGS, and Software Update Manager components.



10. Click “Next”



11. Download the Stack XML file and push all selected files to the Download Basket. Verify the selected components and add the current SPAM/SAINT update.



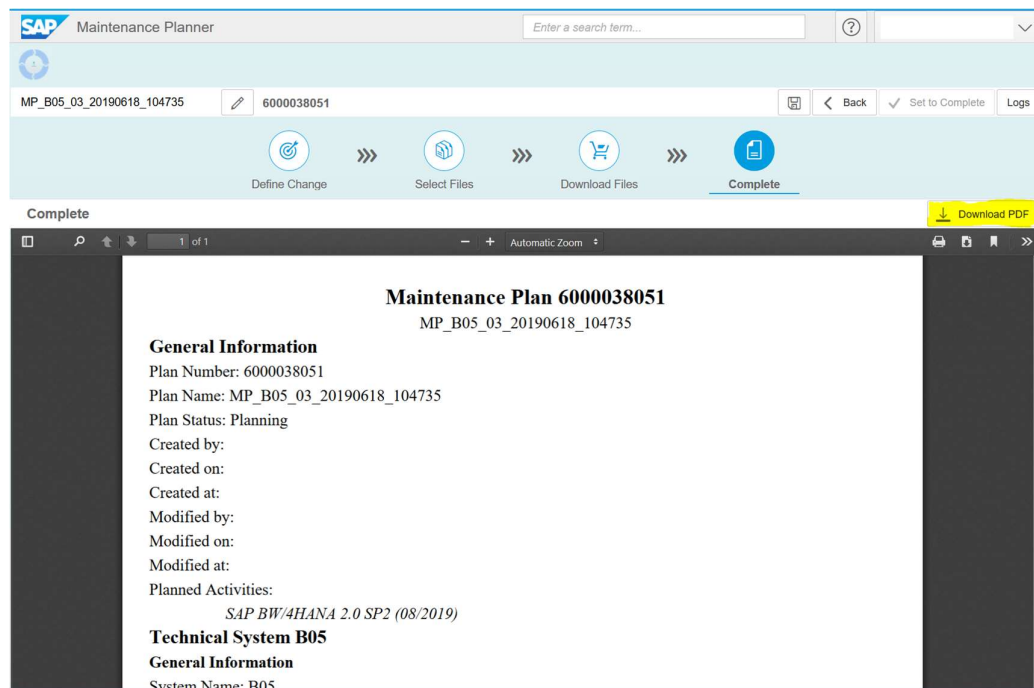
You will need at least SPAM/SAINT version **72**.

☒	KD75072.SAR	SPAM/SAINT Update - Version 750/0072
☒	KD75372.SAR	SPAM/SAINT Update - Version 753/0072

You can then use the [SAP Download Manager](#) to download the files locally to your PC.

Select “Next” to continue.

12. Download the Maintenance Plan to complete the maintenance transaction.



4.13.2 Perform System Conversion using Software Update Manager (SUM) 2.0

The technical system conversion is performed using the Software Update Manager (SUM) 2.0. Please find the relevant information under link:

<https://support.sap.com/en/tools/software-logistics-tools/software-update-manager.html>

Prerequisites

You have downloaded the stack.xml file (see chapter 4.13.1) including all required software components, support and attribute change packages (ACP's) with the Download Basket and going to copy them to the server of your SAP BW system.

Go to the directory /usr/sap/<SID> and create a new directory e.g. "UPG". Go to /usr/sap/<SID> and copy the SUM2OSP05 sar-file together with the SAPCAR file to this directory.

Create a new directory e.g "source" and copy all Software Components from the Download Manager and also the stack.xml file to /usr/sap/<SID>/source

Change the owner of /usr/sap/<SID>/UPG to the <sid>adm, e.g. with chown -R <sid>adm /usr/sap/<SID>/UPG .

Logon with the <sid>adm user and go to directory /usr/sap/<SID>. Give the SAPCAR file sufficient permission to execute it by using the command chmod. Unpack the SUM 2.0 SP05 sar-file, e.g. ./SAPCAR -xvf SUM2OSP05_2.SAR.

Logon with “root” user and go to the directory /usr/sap/<SID>/SUM/abap and start the SUM with ./SUMSTART confighostagent <SID> . Check the output, copy the URL of “SUM ABAP:”, enter the URL in your Internet Browser and start with the upgrade procedure.

Follow the steps in the Software Update Manager (SUM).

SAP Software Update Manager 2.0 SP5 (PL2) Tasklist Logs Breakpoints Help

Get Roadmap

0% - Process is in dialog state
Current Phase: MOD_SELROADMAP/SELECT_ROADMAP

Welcome to Software Update Manager

Important information for this program is included in [SAP Note 2690522](#) and further SAP Notes mentioned therein. Read the current version before you start preparing the procedure and check the SAP Note again for changes before you start the procedure.

Specify a valid stack configuration file. The selection of add-ons and support packages is derived from this file.

Enter a valid XML file name:

*STACKFILE

Archive Verification

The SAP archives are signed with digital signatures. Activate the checkbox “Check archive authenticity” if you want that the authenticity of all archives in the download directory shall be checked.

The authenticity check requires a valid Certificate Revocation List (CRL) in the download directory. You can download a CRL from <https://tcs.mysap.com/crl/crlbag.p7s>.

For more information about the archive authenticity check, see the SUM Guide.

☒ Check archive authenticity

Back Next

Follow further steps according to the SUM with your system requirements.

4.14 General Follow-on Activities

Before being able to use the system after a conversion, certain follow-on activities are required. The necessary tasks are combined into a task list that allows for an easy configuration and automated execution.

Prerequisites

You have completed the system conversion to SAP BW/4HANA.

Documentation

You can find a detailed documentation of the tasks performed during a scope transfer in the system (transaction STC01) or on the [SAP Help Portal](#) → Task List Documentation for Conversion to SAP BW/4HANA.

Procedure

1. Update the Transfer Cockpit to the latest version using SAP BW Note Analyzer (see chapter 7.1.2, Landscape Preparation for In-place Conversion).
2. Run transaction STC01.
3. Select Task List "SAP_BW4_AFTER_CONVERSION".
4. Generate a Task List Run (press F8).

E	C	S	L	Phase	Comp.	Task Description	H	P	Par
✓				Configuration BW4		Install / Adapt essential Content after Conversion to BW/4HANA			
✓				Initialization		Report RSDG_I0B1_I0BC_MIGRATE_AS_TASK - Simplified Migration Report as task Migrate iobcs to folder			
✓				Cleanup		Report RSADMIN_TO_IMG - XPRA - Transferred Selected RSADMIN Parameter into Customizing			
✓				Cleanup		Report RSDDTREXADMIN_TO_RSWSPCUST - XPRA - Transfer BW Workspace rsdtdtrexadmin settings into SPRO			
✓				Configuration BW4		Adjust DTPs			
✓				Configuration BW4		Transfer Source System of Type HANA/SDA to HANA/BigDATA			
✓				Configuration BW4		Migrate Table Groups for Table Placement			

5. Execute the complete task list in background.

Configuring the SAP BW/4HANA Cockpit / Launchpad

Detailed information can be find in [SAP Help Portal](#).

5. Run transaction STC01.
6. Select Task List "SAP_FIORI_LAUNCHPAD_INIT_SETUP".
7. Generate a Task List Run (press F8).
8. Execute the complete task list in background

4.15 List of Object-Specific Follow-On Activities

The list below contains important object-specific follow-on steps and where to find their documentation.

→ Note

This list contains an overview of important steps you may need to do after the conversion process, but it is not complete. You find the complete list of conversion-relevant items in the Simplification List, as explained in the overview.

Follow-on Tasks per Application Area		Reference
Security	Adjust profiles and roles to include standard authorizations for any new or converted objects.	SAP Note 2468657
BW Queries	Adjust queries containing technical InfoObjects like Request ID (OREQUID) that are not supported by SAP BW/4HANA anymore.	SAP Note 2479683
Data Transfer Processes	DTPs with error stacks are deactivated during scope transfers.	Reactivate DTPs using the post conversion task list (see previous chapter).

5 Realizing the Remote Conversion

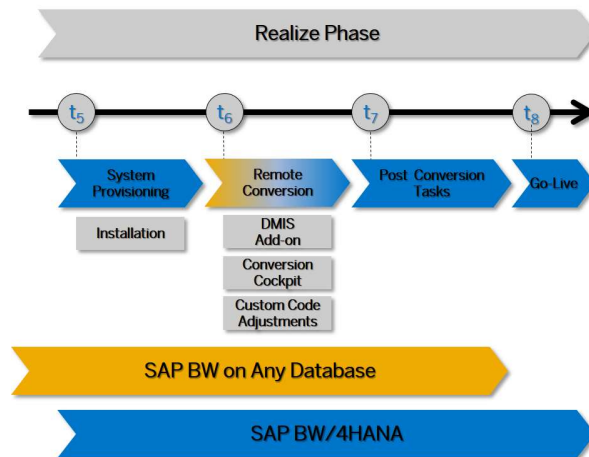


Figure 11: Realization Phase of Remote Conversion to SAP BW/4HANA

After the preparation phase, you start with the realization of the remote conversion to SAP BW/4HANA by provisioning a new SAP BW/4HANA system, installing the SAP Landscape Transformation add-on (DMIS), and using the SAP BW/4HANA Conversion Cockpit (in connection with the Transfer Cockpit). For a brief overview of the entire process, see Overview of the Conversion Process.

→ Note

You find the general follow-on steps in this guide; you get the object-specific follow-on steps with the pre-check and custom-code checks and with the Simplification List for SAP BW/4HANA. Some of the most important application-specific preparation steps are also listed in this section: List of Object-Specific Follow-On Activities.

5.1 Provisioning SAP BW/4HANA System

5.1.1 Installing SAP HANA

In order to install an SAP BW/4HANA system, you need a fully installed SAP HANA system. For more details, see the SAP HANA Master and Installation Guides on [SAP Help Portal](#).

You can choose from a variety of deployment options for SAP HANA (and therefore also SAP BW/4HANA). For details, see [SAP HANA product page](#).

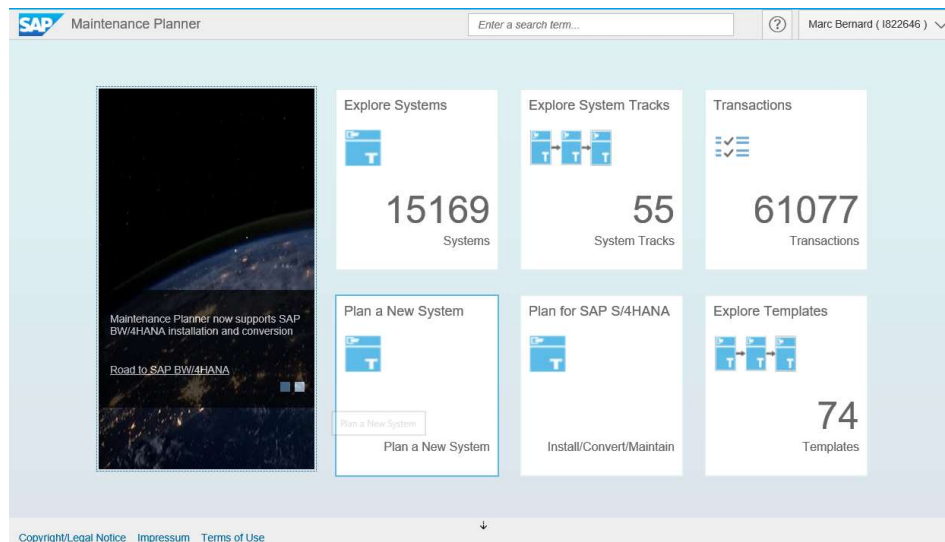
For information, see [Certified and Supported SAP HANA Hardware](#).

5.1.2 Download Software using Maintenance Planner

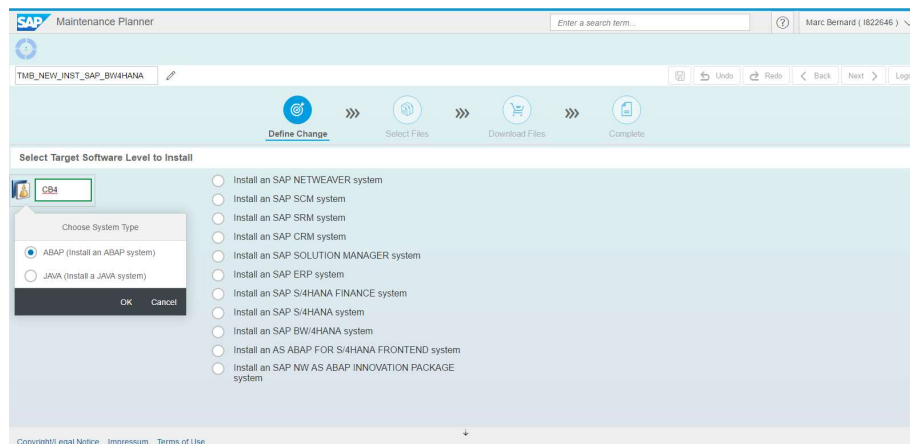
You have to complete a maintenance task transaction to create the stack.xml file and download all required software packages for SAP BW/4HANA.

Procedure

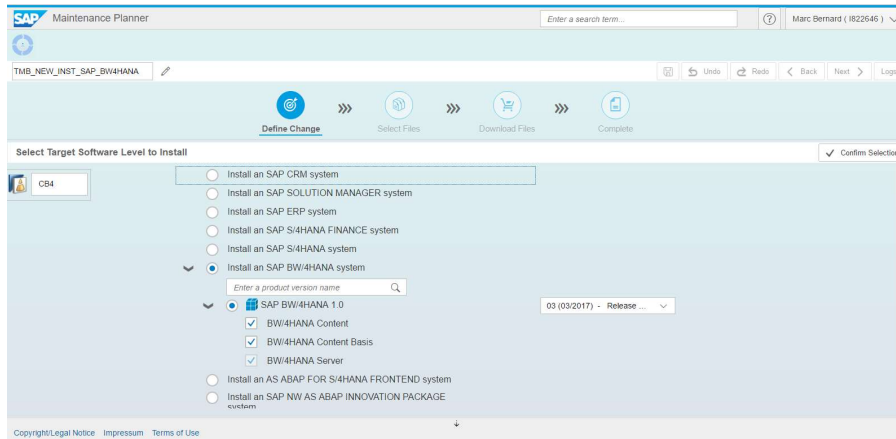
1. Start the [Maintenance Planner](#).
2. Select “Plan a New System”.



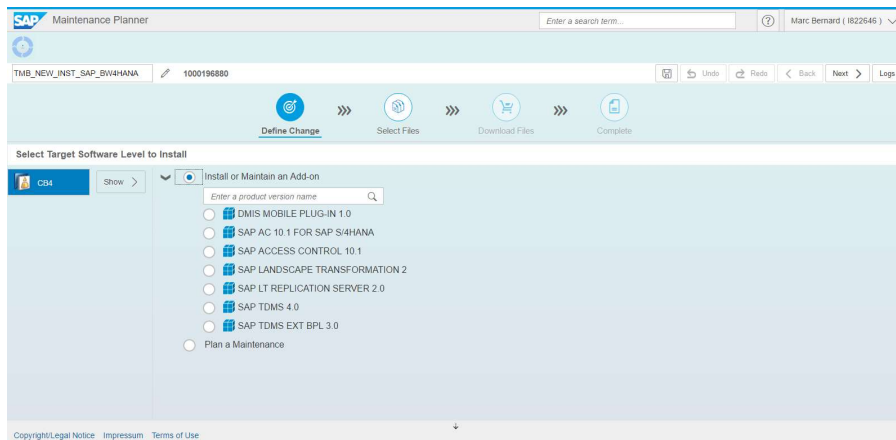
3. Enter a System ID and select system type “ABAP”:



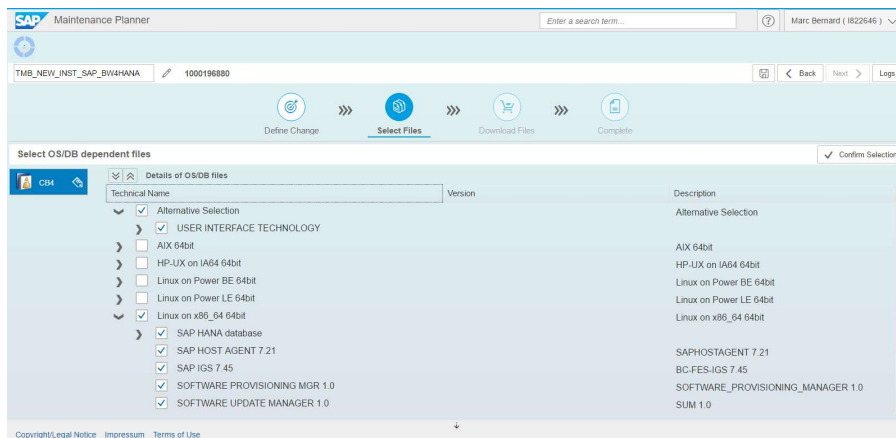
4. Select “Install a SAP BW/4HANA system”. Include SAP BW/4HANA server, and content components and the required support package and confirm the selection.



5. Select "SAP Landscape Transformation 2.0" as an add-on, which is required for a remote conversion. Include at least support package 14.

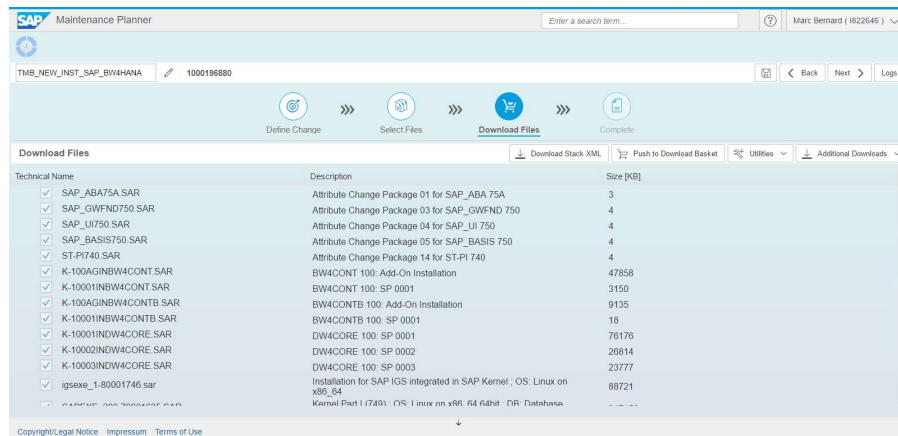


6. Select "Next". Choose the required SAP UI release and OS/DB dependent files:



If SAP HANA is already deployed, you can deselect it.

7. Confirm the selection and select “Next”.



8. Download the final Stack XML file and selected packages using the SAP Download Manager.

You can then use the [SAP Download Manager](#) to export the files to your system landscape. Unpack the SAR file to your EPS inbox.

9. Select “Next” to complete the maintenance transaction.

5.1.3 Installing SAP BW/4HANA

Prerequisites

You have successfully installed SAP HANA.

Procedure

Install SAP BW/4HANA using the Software Provisioning Manager 2.0. For details, see [SAP Help Portal](#).

SAP Note [2568783](#) - Release Note for Software Provisioning Manager 2.0

5.1.4 Initial System Configuration

The initial system configuration is performed using a task list.

Prerequisites

You have completed the system installation of SAP BW/4HANA.

Procedure

6. Start the Task List Framework (transaction STC01).
7. Select Task List "SAP_BW4_SETUP_SIMPLE".
8. Generate a Task List Run (press F8).

Maintain Task List Run SAP_BW4_SETUP_SIMPLE_20171206165110113

Task List: SAP_BW4_SETUP_SIMPLE Simple BW/4HANA Setup

Task List Run: SAP_BW4_SETUP_SIMPLE_20171206165110113

E	C	S	L	Phase	Comp.	Task Description	H	P	Parameter
✓	○	○		Configuration BW4		Confirm reading of note 2362807 - HANA Privileges for BW/4HANA			
✓	○	○		Configuration BW4		Define and Assign Logical System for BW Client using current client			
✓	○	○		Configuration BW4		Create background user in BW - BWREMOTE			
✓	○	○		Configuration BW4		Set/Check BW Client			
✓	○	○		Configuration BW4		Set BW/4HANA Operating Scope			
✓	○	○		Configuration BW4		Check/Generate OBLALL Authorisation Object			
✓	○	○		Configuration BW4		Check/Generate Packages for BW ODATA Services			
✓	○	○		Configuration BW4		Configure Metadata Search for Indexing			
✓	○	○		Configuration BW4		Create SAP DB Connection (DBC)			
✓	○	○		Configuration BW4		Activate BW/4 Web Services			
✓	○	○		Cleanup BW4		Schedule OLAP cache cleanup			
✓	○	○		Cleanup BW4		Schedule deletion of BW messages/parameters			
✓	○	○		Configuration BW4		Schedule Writing of Application Logs to DB			
✓	○	○		Cleanup BW4		Schedule DTP cleanup job			
✓	○	○		Configuration BW4		Schedule Monitor Assistant			
✓	○	○		Configuration BW4		Check Masterdata Read Classes			
✓	○	○		Configuration BW4		Set DIV4CORE to active			
✓	○	○		Configuration BW4		Maintain Allowed Characters in BI			
✓	○	○		Configuration BW4		Create RFC Destination for After-Import handling of client dependent BW objects (RSTPRFC)			
✓	○	○		Configuration BW4		Maintain Query Executor settings for Eclipse Query Designer and/or Workspace Query Designer			
✓	○	○		Initialization		Report RSDG_JOB1_JOB1_MIGRATE_AS_TASK - Simplified Migration Report as task Migrate jobs to folder			
✓	○	○		Initialization		Report RSADMIN_TO_BMG - XPR - Transferred Selected RSADMIN Parameter into Customizing			
✓	○	○		Initialization		Report RSDOTREXADMIN_TO_RSVSPCUST - XPR - Transfer BW Workspace reddtrexadmin settings into SPRO			

→ Note

Some tasks are skipped as a default setting. Consult the documentation assigned to the task to see if it's relevant for your deployment.

9. Maintain any required tasks parameters (yellow icon).
10. Execute the task list.
The transfer of other settings and tables, e. g. currency, unit information, z-tables, etc. has to be taken care of independently of the BW-object activities and is not supported by the Transfer Toolbox.

Configuring the SAP BW/4HANA Cockpit / Launchpad

Detailed information can be find in [SAP Help Portal](#).

1. Run transaction STC01.
2. Select Task List "SAP_FIORI_LAUNCHPAD_INIT_SETUP".
3. Generate a Task List Run (press F8).
4. Execute the complete task list in background

5.1.5 Creating Source Systems

As a prerequisite for performing a remote conversion, you have to create new Source System connections in SAP BW/4HANA for all data flows that you want to transfer.

For example, if your SAP BW system is connected to SAP ERP system using an *SAP Source System*, then you must create an *ODP Source System* to the same SAP ERP system in SAP BW/4HANA.

5.2 Installing SAP Landscape Transformation Add-on

A remote conversion requires the installation of the SAP Landscape Transformation add-on (DMIS add-on) on both, the original SAP BW as well as the target SAP BW/4HANA systems (see SAP Note [2513088](#))¹⁵. The SAP LT add-on contains the SAP BW/4HANA Conversion Cockpit (see next chapter). Installation related information can be found in the following SAP Notes:

SAP Note [1577441](#) - Installation and delta upgrade of DMIS 2011_1

SAP Note [1577503](#) - Upgrade to DMIS 2011_1 in the system switch upgrade

SAP Note [1648747](#) - DMIS 2011 / DMIS_CNT 2011 Generation errors during installation

Procedure

1. Install the DMIS 2011_1_7xx add-on (SP 14 or higher) on your SAP BW system using the add-on installation tool (transaction SAINT).
2. If not included in the installation of SAP BW/4HANA, install the DMIS 2011_1_731 add-on (SP 14 or higher) on your SAP BW/4HANA system using the add-on installation tool (transaction SAINT).

5.3 Updating System Landscape using SAP BW Note Analyzer

After installations of SAP BW/4HANA and the Landscape Transformation add-on, it is necessary to update the system landscape to the latest version of the SAP BW/4HANA Transfer and Conversion Cockpits. This is achieved by running SAP BW Note Analyzer with the corresponding XML file and implementing all required SAP Notes. For more details, see chapter 7.1.3 Landscape Preparation for Remote Conversion.

→ Note

SAP is continuously updating the tools required for conversion. Therefore, it is highly recommended to update the SAP BW/4HANA Transfer and Conversion Cockpits on a regular basis by running SAP BW/4HANA Note Analyzer with the most recent XML files attached to SAP Note [2383530](#).

5.4 Introduction to SAP BW/4HANA Conversion Cockpit

The SAP BW/4HANA Conversion Cockpit is used to convert from classic SAP BW to SAP BW/4HANA system and has the following characteristics:

- Status management and progress tracking ensuring a good documentation of activities executed

¹⁵ Both the original and target system should have the same DMIS-AddOn Version/Support Package level.

- A central place to execute the activities
- Documentation and guided step-by-step activities (process tree)
- Restart of data transfer after interruptions
- Re-execution of all activities not required in the case of issues since the data transfer picks up from the latest state

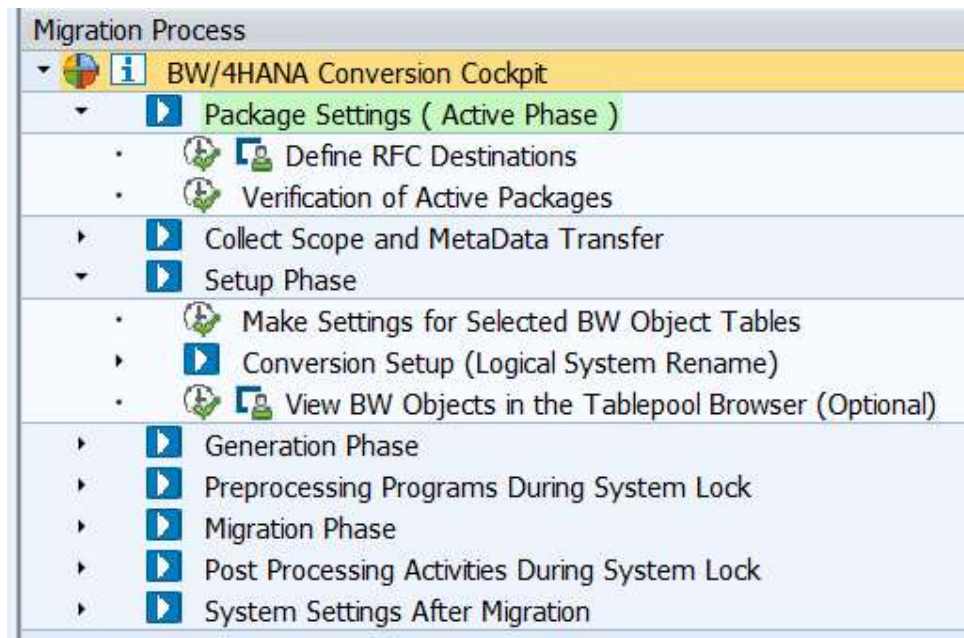


Figure 12: Process Tree of the SAP BW/4 HANA Conversion Cockpit

The conversion process tree of the SAP BW/4HANA Conversion Cockpit is a set of activities or steps for remote conversion. You are guided through all steps. Furthermore, there are defined dependencies between steps to prevent manual errors.

5.4.1 Process Tree

You use the process tree to execute activities for a remote conversion. The activities themselves are executed in the execution systems such as the original system and the target system. In the process tree, you can view all the necessary activities for the conversion.

SAP Landscape Transformation provides several measures to ensure a secure and consistent remote conversion process:

5.4.2 Active and Inactive Packages

SAP BW/4HANA Conversion Cockpit uses packages to organize the remote conversion process. On an execution system, such as the original system or the target system, packages can be active or inactive and only one active package can exist at a time (within a client). Conversion activities can only be executed for an active package.

To create a new package, the existing active package has to be completed or deactivated first.

5.4.3 Phase Concept

Each activity is assigned to a specific phase in the process tree of a package. An activity can only be executed, if the phase that it belongs to is active.

Once a package is started, the first phase is active. The next phase is activated once the first activity of this phase has been started. This can only happen, if all programs of the preceding phase have been finished successfully (with ok or warning).

5.4.4 Status Management

Among the activities within one phase, there are certain predecessor-successor-relations defined. Each activity ends with a status (ok, warning, or error). If an activity is not yet executed, or if an activity has an error status, the successor activity cannot be started. If an activity has an error status, activities in the succeeding phase cannot be started.

5.4.5 Individual and Group Activities

The process tree can include activities that you execute one-by-one as well as so called group activities. When executing a group activity, you start a sequence of activities that run in the background. Since each activity automatically starts its successor activity, no further user interaction will be required.

If the group activity terminates or ends with errors or warnings, activate the extended view of the process tree. You can now view all activities that belong to the group activity and their statuses.

You have the option to individually execute each activity in extended process tree.

→ Note

It is important that you execute the activities in the defined sequence. We therefore recommend that you work with the standard view and the collective execution functions provided by the SAP BW/4HANA Conversion Cockpit. You can switch to the extended view only if the activity terminates or ends with errors or warnings.

5.4.6 User Roles and Authorization

There are two user roles for the SAP BW/4HANA Conversion Cockpit.

1. Execution User

This is a composite role for execution expert users with complete project administration authorizations. It contains the authorizations that are assigned to the following roles:

Contained single roles	Description
------------------------	-------------

SAP_DMIS_SLOP_BASIS	SAP DMIS SLOP - Basis authorizations for CWB functionality
SAP_DMIS_SLOP_BASIS_700	SAP SLOP Add. authorizations for Basis release 700
SAP_SLOP_MASTER	SAP SLOP - Master user
SAP_SLOP_RFC_USER	SAP SLOP - Standard RFC user
SAP_DMIS_SLOP_APPL1	SAP SLOP Additional authorizations 1
SAP_DMIS_SLOP_APPL2	SAP SLOP Additional authorizations 2
SAP_DMIS_SLOP_APPL3	SAP SLOP Additional authorizations 3
SAP_DMIS_SLOP_APPL4	SAP SLOP Additional authorizations 4
SAP_LTRL_MASTER	SAP SLOP Specific authorizations for BW/4 Remote Conversion

2. Communication User

The SAP BW/4HANA Conversion Cockpit does not come with fixed destinations or user names. An RFC destination from the original SAP BW system and target SAP BW/4HANA system needs to be created using process tree step "Define RFC Destination" (see below).

Users in RFC destinations need to be of type dialog and require authorizations specified by one of the following composite roles:

Contained single roles	Description
SAP_DMIS_SLOP_BASIS	SAP DMIS SLOP - Basis authorizations for CWB functionality
SAP_DMIS_SLOP_BASIS_700	SAP SLOP Add. authorizations for Basis release 700
SAP_SLOP_RFC_USER	SAP SLOP - Standard RFC user
SAP_DMIS_SLOP_APPL1	SAP SLOP Additional authorizations 1
SAP_DMIS_SLOP_APPL2	SAP SLOP Additional authorizations 2
SAP_DMIS_SLOP_APPL3	SAP SLOP Additional authorizations 3
SAP_DMIS_SLOP_APPL4	SAP SLOP Additional authorizations 4
SAP_LTRL_MASTER	SAP SLOP Specific authorizations for BW/4 Remote Conversion

→ Note

Additionally, refer to SAP Note [2383530](#) (section 2.3) and assign authorizations to the execution and communication user as recommended.

5.5 Object Conversion Using SAP BW/4HANA Conversion Cockpit

This section describes, how to transfer data models and data flows from SAP BW to SAP BW/4HANA and convert them to HANA-optimized objects that are compatible with SAP BW/4HANA. The converted objects will be collected in SAP BW, transported to and created in the new SAP BW/4HANA system, and data will be synchronized using the SAP BW/4HANA Conversion Cockpit.

Demo

You can find a recording of a complete scope transfer on [YouTube](#).

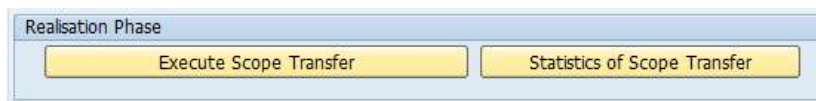
Prerequisites

In particular, you need authorization for authorization objects S_RS_B4H, S_TC, and S_RFC. You also need authorization advanced DataStore objects (S_RS_ADSO), CompositeProviders (S_RS_HCPR), or any other object created or modified during the conversion. A consolidated list of authorization objects and values required for in-place scope transfer is attached to SAP Note [2383530](#).

You have checked the consistency of the SAP BW system and repaired any issues that might exist. It's important that master and transaction data are 100% consistent. Issues for example with missing SID values will cause problems during the scope transfer. It is therefore recommended to run corresponding consistency checks for objects that you want to transfer (see transaction RSRV).

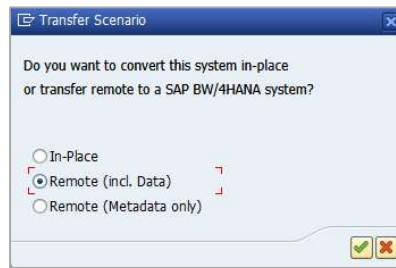
5.5.1 Starting a Remote Conversion and Creating a New Project

1. Log in to the SAP BW system.
2. Start the SAP BW/4HANA Transfer Cockpit (transaction RSB4HCONV) and select "Execute Scope Transfer" in the section "Realization Phase".



Alternatively, use transaction RSB4HTRF and choose between in-place, remote, or shell conversion:

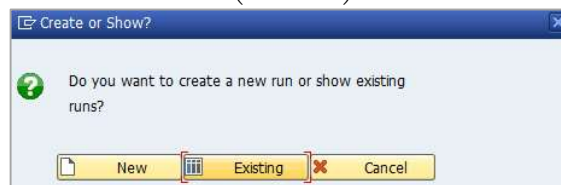
Choose option "Remote (incl. Data)" to start a remote conversion scenario:



3. To load a new scenario, choose option “New” and to work with already existing scenario choose option “Existing”.



(first call)

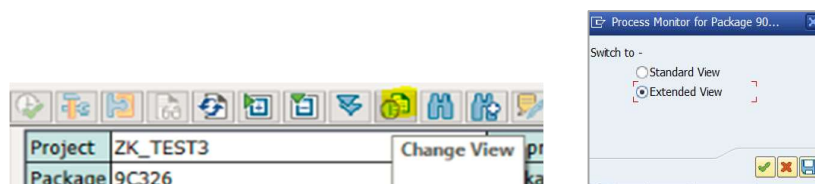


(subsequent calls)

4. After creating the package, the system automatically navigates to the SAP BW/4HANA Conversion Cockpit.

Alternatively, you can view the process tree by using transaction CNVMBTPCT and entering the package number. Press F8 to bring up the process tree.

5. You can switch to the “Extended View” by choosing the “Change View” button. You can now view the sub-activities under all mass starter activities.



→ Note

Only one execution package of the **SAP BW/4HANA Conversion Cockpit** can be active in system at a given time. A package is a combination of all necessary programs and settings, routines and data definitions needed to execute a transformation. The SAP BW/4HANA Conversion Cockpit is started and used to monitor the conversion within the original system. It communicates with the target system.

The following chapters describe activities that require user input or are significant to the remote conversion during the transition to SAP BW/4HANA. Advanced SAP BW knowledge and information about the current SAP BW installation as well as the planned use of the SAP BW/4HANA target system are required to execute all the activities in the process tree of the SAP BW/4HANA Conversion Cockpit.

5.5.2 Package Settings Activities

After creating a new project and subproject, you need to start executing the activities belonging to the first Package Settings phase in the SAP BW/4HANA Conversion Cockpit.

Migration Process	Status	Progress (...)	Tasks	Execution ...	Note	Attachment	Log
SAP BW/4HANA Conversion Cockpit							
Package Settings (Active Phase)							
Load Initial Package Settings		100 %		0001			
Define RFC Destinations		0 %		0000			
Verification of Active Packages		0 %		0000			
Collect Scope and MetaData Transfer							

1. Load Initial Package Settings

Run this activity to initialize the package.

2. Define RFC Destination

In this activity, you need to establish a connection between the original and target systems.

→ Note

The original system must be setup as a control system.

To set up the landscape for the remote conversion available with DMIS SP16, proceed as described below:

1. Execute the “Define RFC Destinations” activity.

Migration Process	Status	Progress (...)
BW/4HANA Conversion Cockpit IO Test3		
Package Settings		
Load Initial Package Settings		100 %
Define RFC Destinations		100 %

2. For the original SAP BW system by default “NONE” is maintained. For the target SAP BW/4HANA system, you need to maintain the name of the RFC destination (of type 3).

RFC maintenance for package

Log ⓘ

Sender system	NONE	Test connection	Remote logon	Authorization check	Details
Receiver system		Test connection	Remote logon	Authorization check	Details

3. Verification of Active Packages

This activity automatically verifies that only the current package is active in the system landscape. If any other packages are active, this activity stops and does not make the settings for the current package. In that case, you can check the logs and take the necessary actions (such as deactivating other active packages) to proceed with the execution of the remote conversion.

To deactivate the current active package in the execution system, choose the *Troubleshooting* ⓘ Troubleshooting ⓘ pushbutton. Select *De-activate Active Package in Execution System* and finally choose the *Execute Activity* pushbutton.

Trouble-Shooting for package 90019

Execute activity ⓘ Error / Aborted ⓘ Warning ⓘ Succeeded / Not yet finished

Verification of Active Packages

- De-activate Active Package in Execution System
 - De-activate Active Package in Execution System

Troubleshooting

Use

If process steps have been completed with errors (red light), have terminated (flash) or seem to run endlessly - the following procedures will help you to analyze / resolve the corresponding problem.

General remark

The individual process steps can always be restarted if errors occur or programs terminate. Long-running activities are even allowed to be restarted while a previous execution is still running. The process status management makes sure that only activities that are allowed to be restarted or repeated are restarted.

So if errors occur or programs terminate, the first thing you should try is to simply restart the corresponding activity in the process tree. In case an error persists after the new execution - follow the troubleshooting processes described below to analyze the problem in detail.

5.5.3 Collect Scope and Metadata Transfer

The Collect Scope and Metadata Transfer phase consist of sequence of activities, which help users to select the in-scope BW objects and lock objects in one or several transport requests to move them into the target system (using a transport of copies).

Migration Process	Status	Progress (...)	Tasks	Executio...	Note	Attachment	Log
- Package Settings (Active Phase) - Collect Scope and MetaData Transfer - Collect Scope for Transfer (Data flow) - Define Object Mapping and Store Object List - Map InfoObjects for InfoProvider - Select Main Parttion Criteria for Semantically Partitioned - Determine Usage of Involved Objects - Checklist for Usage of Involved Objects - Confirm Metadata in Target System with Data Transfer - Setup Phase - Generation Phase - Preprocessing Programs During System Lock - Migration Phase - Post Processing Activities During System Lock - System Settings After Migration							
		0 %		0000			
		0 %		0000			
		0 %		0000			
		0 %		0000			
		0 %		0000			
		0 %		0000			
		0 %		0000			

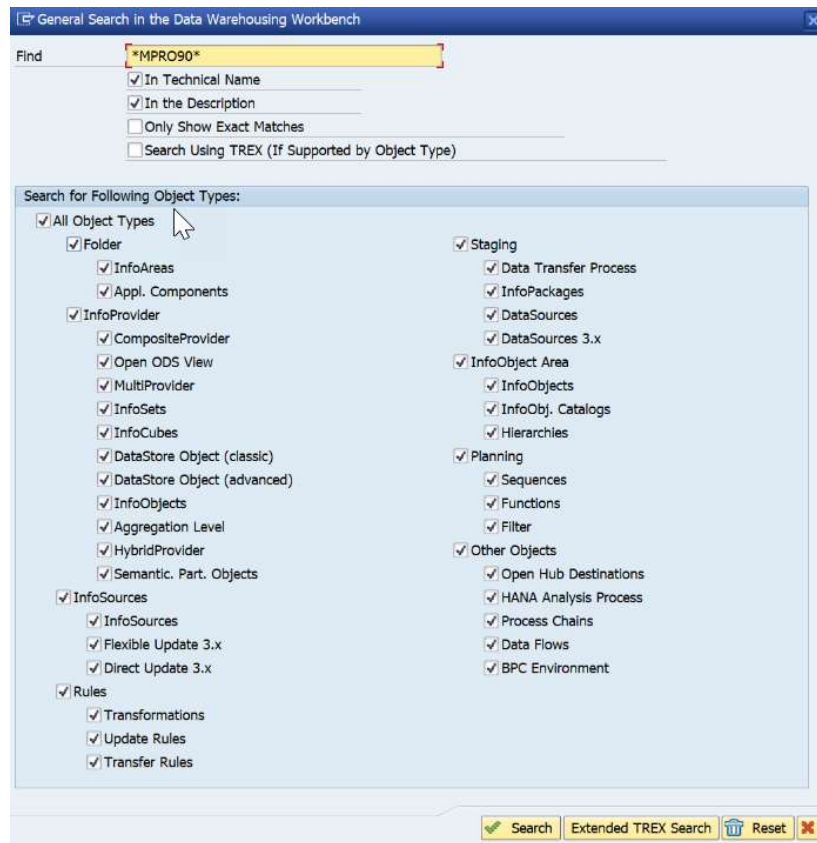
1. Collect Scope for Transfer (Data flow)

In this activity, you can select the BW objects and their metadata that you want to transfer to their successor(s) HANA-optimized objects in the SAP BW/4HANA system. This gives you the opportunity to build a clean system and leave old and unused objects behind.

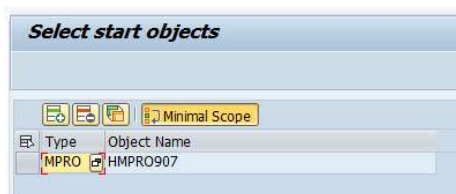
To start a transfer of objects to the object types available in SAP BW/4HANA, you first have to collect all objects related to the objects that you want to transfer. You must collect all objects related to the objects to be transferred. This is because the objects are copied to the target system using a transport request and can only be transferred and activated there, if all dependent objects are available as well. Based on user input, one or several transport requests are created in the original system. These transports are next imported to the target system.

The “General Search” of the Data Warehousing Workbench is displayed.

1. Search for the objects you want to use as a starting point to determine the conversion scope. The user interface allows you to search for your objects using the standard BW workbench search.



You must include at least one object in the list.



If you previously performed a remote conversion and you would like to use the same start objects as for your previous converted system, choose the "Copy from Remote System" icon. You can then choose an RFC connection to be used to read the information from the previous converted system.

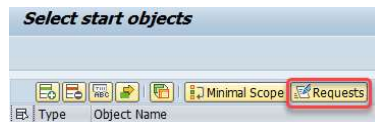
In addition, you can choose the corresponding toggle button to decide whether the collection should be a "minimal scope". This way you can, for example, transfer InfoCubes and DataStore objects without selecting the MultiProvider or queries. This enables you to separate the transfer of the staging layer from the transfer of the reporting layer". If the minimal scope button is pressed, objects which had been transferred before will not be collected again.

Special features within the scope selection:

- Optimized Request Transfer

The Transfer Toolbox introduces a new feature of an optimized Request Transfer. This request transfer is based on a preliminary processing of the data in the InfoProviders before transfer. It results in a reduced number of TSN based Requests in the resulting ADSOs, InfoObjects and Open Hub Destinations.

In the selection screen of the start objects a toggle box "Requests" for optimized request transfer has been introduced. It is switched off by default. Once the scope is collected, the flag can't be changed anymore.



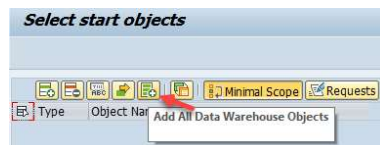
Therefore, the optimized request transfer is between 5 and 100 times faster, depending on your system (hardware, model complexity). This means that instead between 5 and 100 Requests per Minute, now between 500 and 1000 Requests can be transferred per Minute.

This also means that it is not necessary to reduce the requests before the transfer, only a reduced number of requests will be transferred, which in turn will minimize the exposure to follow up problems in the life cycle of the transferred requests.

For more information see SAP Note [2482164](#) - BW4SL - Request and Status Management

- Select All Data Warehouse Workbench Objects

In case all BW objects have to be transferred to the receiver system this option enables you to select all objects without selecting them data model by data model.



2. Save your selection and return to the task list.
3. Continue the task list run by selecting "Execute" .

2. Define Object Mapping and Store Object List

In this activity, you select objects that need to be transferred and write them to one or several transport request

Original TL	Original Object Name	Description	New TLO	New Object Name	Tra	Special Options	R	Met	Dat	Req
DTPA	DTP_6FMR9T6C1QA1FR8XHFEGG3803	ZSC_AT5 -> ZAD_AT5	DTPA	DTP_6FMR9T6C1QA1FR8XHFEGG3803	☒		A	☒	☐	☐
DTPA	DTP_6FMR9T6C1QA1FR8T5WLVSH12J	ZSD_AT5 -> ZIC_AT5	DTPA	DTP_6FMR9T6C1QA1FR8T5WLVSH12J	☒		C	☒	☐	☐
DTPA	DTP_6FMR9T6C1QA1FR8X8JDGQ5G6X	ZDS_AT5 / FLATFILES -> ZSC	DTPA	DTP_6FMR9T6C1QA1FR8X8JDGQ5G6X	☒		C	☒	☐	☐
DTPA	DTP_6FMR9T6C1QA1FR8T5A3DZRGX	ZDS_AT5 / FLATFILES -> ZWD	DTPA	DTP_6FMR9T6C1QA1FR8T5A3DZRGX	☒		O	☒	☐	☐
DTPA	DTP_6FMR9T6C1QA1FR8T5N7NQJ7ZX	ZWD_AT5 -> ZSD_AT5	DTPA	DTP_6FMR9T6C1QA1FR8T5N7NQJ7ZX	☒		O	☒	☐	☐
ADSO	ZAD_AT5	ADSO AT 5 Test	ADSO	ZAD_AT5	☒		A	☒	☒	☒
ADSO	ZSD_AT5	Standard DSO AT 5 Test	ADSO	ZSD_AT5	☒	Transfer Full Change Log	A	☒	☒	☒
ADSO	ZWD_AT5	AT 5 Test	ADSO	ZWD_AT5	☒	No change log exists	A	☒	☒	☒
CUBE	ZIC_AT5	Infocube AT 5	ADSO	ZIC_AT5	☒		A	☒	☒	☒
CUBE	ZSC_AT5	Standard Cube AT 5	ADSO	ZSC_AT5	☒		A	☒	☒	☒
IOBJ	OCALMONTH	Calendar year/month	IOBJ	OCALMONTH	☒		I	☐	☒	☐
IOBJ	OCALQUART1	Quarter	IOBJ	OCALQUART1	☒			☐	☒	☐
IOBJ	OCALQUARTER	Calendar year/quarter	IOBJ	OCALQUARTER	☒			☐	☒	☐
IOBJ	OCALWEEK	Calendar year / week	IOBJ	OCALWEEK	☒			☐	☒	☐
IOBJ	OCALYEAR	Calendar year	IOBJ	OCALYEAR	☒			☐	☒	☐
IOBJ	OCURRENCY	Currency key	IOBJ	OCURRENCY	☒			☐	☒	☐
IOBJ	ODATE	Date	IOBJ	ODATE	☒		I	☐	☒	☐
IOBJ	OFISCVARNT	Fiscal year variant	IOBJ	OFISCVARNT	☒			☐	☒	☐
IOBJ	OFISCYEAR	Fiscal year	IOBJ	OFISCYEAR	☒		I	☐	☒	☐
IOBJ	OFISCPER	Fiscal year / period	IOBJ	OFISCPER	☒		I	☐	☒	☐
IOBJ	OHALFYEAR1	Halfyear	IOBJ	OHALFYEAR1	☒			☐	☒	☐
IOBJ	OWEEKDAY1	Weekday	IOBJ	OWEEKDAY1	☒			☐	☒	☐
IOBJ	OUNIT	Unit of measure	IOBJ	OUNIT	☒			☐	☒	☐
IOBJ	ZUNIT	Unit of measure	IOBJ	ZUNIT	☒		A	☒	☒	☒

You can choose the toggle buttons “Hide/Show Secondary Objects and Hide/Show InfoOb-
jects” to filter on the “New TLOGO” column for the objects collected in your system. These
filter buttons provide you with an overview of the most important objects. You can of course
manually create any filters you like.

You can select and deselect objects for the transfer using the checkbox.

Special Cases:

- For classic DataStore objects or InfoCubes containing navigation attributes, and which
are used in at least one query, the transfer requires the introduction of a new Com-
positeProvider. You can specify the name of the CompositeProvider.
- For standard DataStore objects, you can specify in the “Special Options” column
whether to transfer the full change log or minimize the change log -- that is, only take
over requests relevant for delta processing.
- For processes containing a Persistent Staging Area (PSA), you can convert the PSA into
a DataStore object (advanced) or ignore the PSA. You can specify the name of the
DataStore object (advanced).
- When selecting S-API DataSources for the first time, you can provide a name for the
ODP Source System.

→ Note

Before the first transfer takes place, the ODP Source System must be created manually
in the target (see chapter 5.1.5 Creating Source Systems).

- For steps in process chains, which are not available or obsolete in SAP BW/4HANA, you
can specify in the Special Options column whether to delete these steps. The before and
after steps are automatically reconnected to keep the process chain intact.

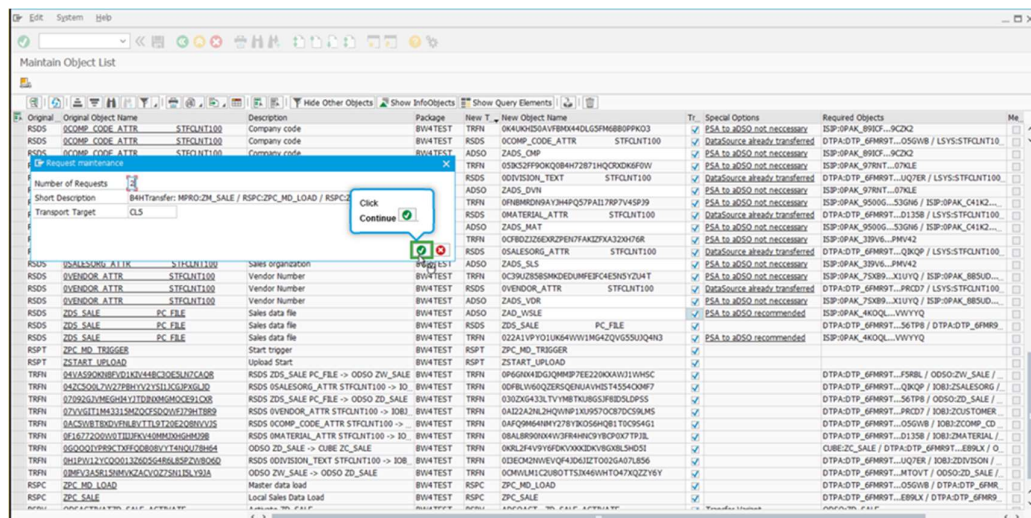
1. In the Transfer Object column, select all objects of the current collection that you want to transfer into a BW/4HANA-compatible format.

Since the objects have interdependencies, special care was given that all affected or necessary objects are always selected or deselected along with the one you click. It is thus often not possible to select or deselect a single object. The impact might also be non-objective. Therefore, if object B was automatically deselected along with object A, selecting object A again might not automatically select B again. Similarly, the reverse is true as well: If object A is automatically deselected along with object B, selecting object B again might not automatically select A again.

By choosing an entry in the "Original Object Name" column, you can see, why this object was collected. You can open here a graphic with the where-used-analysis.

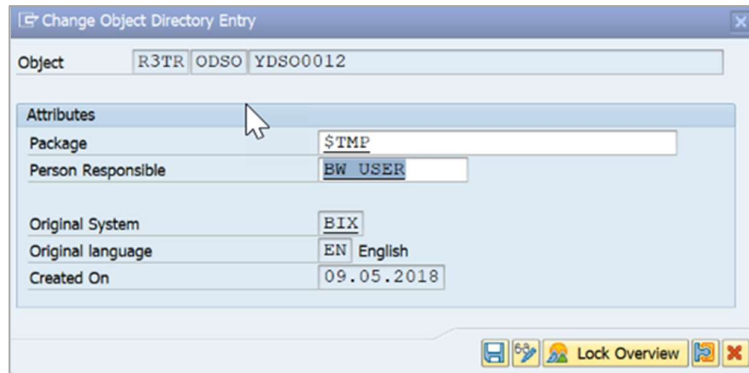
Columns "New TLOGO" / "New Object Name" show what will be the resulting object of the transfer. For some objects that will be additionally created such as Datastore objects (advanced) as replacement of PSAs, the new name must be entered manually. For other objects, a new name is proposed, but can be changed. For most of them, the new name is determined by the system and is not changeable. If you selected an object for transfer, and the new name is not given, the task is displayed as "not maintained" in the task list run.

2. For remote transfer there will be a "Create Transport Request" button . You have to press this button once before executing the task. Depending on the number of objects in the scope, create one or several transport requests. During execution of the task these transport requests will be filled with the selected objects After the task has been executed, you need to release these requests and transport them to the SAP BW/4HANA target system.



SAP BW objects which are saved locally (\$TMP) cannot be transported to the target system and must be assigned to a package. Use "Assign Package" in the object list

maintenance, to select a package to make the objects transportable (you can choose multiple objects).



3. Save your mapping, return to the task list and execute it.

3. Map InfoObjects for InfoProvider

This activity task provides the option of performing the required InfoObject mapping for the transfer of a MultiProvider to a CompositeProvider. This mapping is necessary, as the CompositeProvider requires a consistent mapping of navigation attributes.

4. Select Main Partition Criteria for Semantically Partitioned

This activity provides the option to select the main partition InfoObject, which should be used for the new DataStore objects (advanced) in the generated semantic group. As semantic groups support only one partition InfoObject, this selection is necessary. The other partition InfoObject filters are nevertheless also added to the corresponding DataStore objects (advanced) as filter criteria.

5. Determine Usage of Involved Objects

This activity checks generated objects of InfoProviders and scans involving routines, planning functions etc. against problematic code, which might cause errors during the transfer

6. Checklist for Usage of Involved Objects

This task shows a list of objects or findings to be checked or resolved. Adjustments can be done in the original or target system. This includes usage of generated objects and of InfoProviders that will not exist anymore after the transfer. Customer code also needs to be checked for changes that occur during the transfer. You can check, for example, where InfoObjects are exchanged, or queries run on a CompositeProvider after the transfer instead of on top of a classic DataStore object or an InfoCube.

Maintain the parameters to view, adjust, and confirm the usage of the involved objects in custom coding, Business Add-ins (BADIs), or authorizations.

Resolved	Status	Check Again	Object Type	Object Name	Where Used	Show Details
☒			BADI	*		
☒			AUTH	*		

You must verify all occurrences and mark them as “Resolved” in order to continue.

The two yellow messages you see in the “Check List for Customer Coding” are generic warnings that appear for all task list runs independently from the scope. The warnings aim to make transparent that you should look at the BAdI implementations and the analysis authorizations.

→ Note

If you do not resolve issues in custom code, the unresolved issues could lead to syntax errors and prevent the successful activation of the transferred objects.

Continue the task list run by selecting “Execute” and “Background”.

7. Confirm Metadata in Target System with Data Transfer Prep

→ Caution

Do not confirm the task yet. You first have to release the transport(s) you created before in the task list in SAP BW and import them into your SAP BW/4HANA system.

1. In your original system, release the transport request you created before in this task list.

Start transaction SE09 and select the “Display” pushbutton.

Transport Organizer

User:

Request Type

- ☒ Customizing Requests
- ☒ Workbench Requests
- ☒ Transport of Copies
- ☒ Relocations

Request Status

- ☒ Modifiable
- ☒ Released

Global Information | **Transport Proposals**

3 Transports

0 Repairs

- Double-click the transport request number you want to release. Verify or enter the target system, if you haven't entered it before.

Display request/task BIXK000107

Request/Task: Transport of copies

Properties | **Objects** | **Documentation**

Short Description:

Target System:

Source client:

Owner:

Status:

Last changed:

Attribute

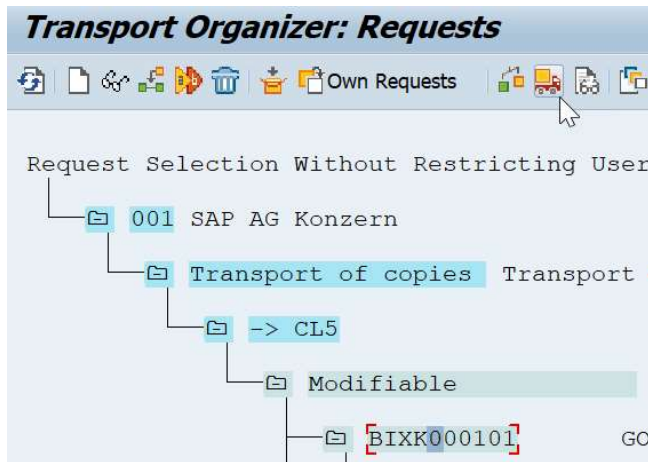
Attribute	Value
EXPORT_TIMESTAMP	Request export time 20180514150213
SAPCOMPONENT	Single Component of System Component Ve_DMIS, 2011_1_731, 001...
SAPCOMPONENT	Single Component of System Component Ve_SAP_ABA, 750, 0008
SAPCOMPONENT	Single Component of System Component Ve_SAP_BASIS, 750, 0008
SAPCOMPONENT	Single Component of System Component Ve_SAP_BW, 750, 0012
SAPCOMPONENT	Single Component of System Component Ve_SAP_GWFND, 750, 0008
SAPCOMPONENT	Single Component of System Component Ve_SAP_UI, 750, 0008

Select transport target

☒ Target System

☐ Target group

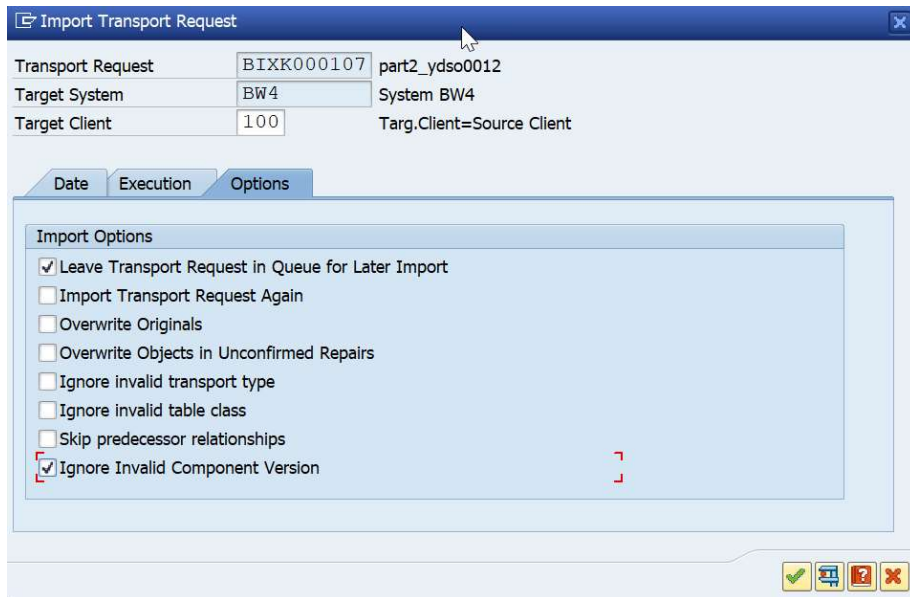
- Go back to Transport Organizer: Requests.



Select the desired transport request number and click the “Release Directly” button



4. Wait until the release of the transport has been completed.
5. Import the transport request into the target system. This will transfer your classic objects into HANA-optimized ones.
6. Logon to the SAP BW/4HANA target system.
7. Start transaction STMS and select “Import Overview” (F9).
8. Double-click your desired target system and refresh the list of transport requests.
9. Select the request number to import and click the “Import request” button.
10. Enter the target client and the execution date. On the “Options” tab, you have to select at least the option “Leave Transport Request in Queue for Later Import” and “Ignore Invalid Component Versions”.



11. Choose "Continue" to import the transport request.
12. Repeat the release and import for all other transport requests you have created for this task list run.
13. Once the all the transports are imported into the target system **successfully**, execute activity "Confirm Metadata in Target System with Data Transfer".

5.5.4 Setup Phase Activities

The Setup Phase consists of a sequence of activities that prepare the original and target systems for the data transfer.

Migration Process	Status	Progress (...)	Tasks	Executio...	Note	Attachment	Log
SAP BW/4HANA Conversion Cockpit							
Package Settings							
Collect Scope and MetaData Transfer (Active Phase)							
Setup Phase							
Make Settings for Selected BW Object Tables		0 %		0000			
Conversion Setup (Logical System Rename)				0000			
Select Conversion-Relevant InfoObjects		0 %		0000			
Define Mapping Values		0 %		0000			
Make Settings for Conversion-Relevant InfoObjects		0 %		0000			
View BW Objects in the Tablepool Browser (Optional)				0000			
Generation Phase							
Preprocessing Programs During System Lock							
Migration Phase							
Post Processing Activities During System Lock							
System Settings After Migration							

1. Make Settings for Selected BW Object Tables

This is a group activity (see 5.4.5 Individual and Group Activities). Underlying activities will identify tables relevant for data transfer based on BW objects selected and make required configuration in original and target systems for data migration.

2. Original (Sender) System Activities

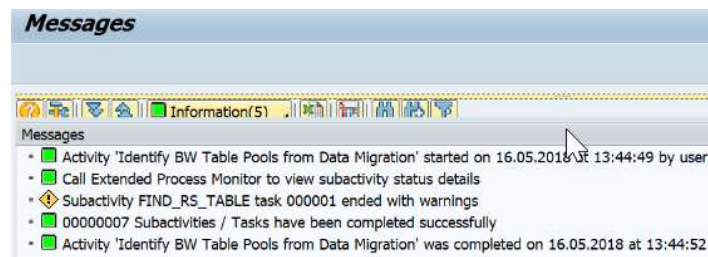
1. Read Object Mapping from the BW Transfer Tool

This activity reads objects maintained in the scope selection of the task list that are relevant for data transfer and stores the objects in control tables of the SAP BW/4HANA Conversion Cockpit.

You will not be able to proceed with this step until you fulfill pre-requisite mentioned in step “Prepare Scope for Data Transfer”. In case there are multiple task lists open - all the task list runs should in sync in terms of pre-requisites to be met.

2. Identify BW Table Pools from Data Migration

This activity identifies a list of tables relevant for the BW objects selected for data migration. In this activity you can check the logs to view the information about the BW table pools identified for migration by choosing the  Execution log information pushbutton.



You can also display the sub-activity status overview by choosing the Sub-activities  button.

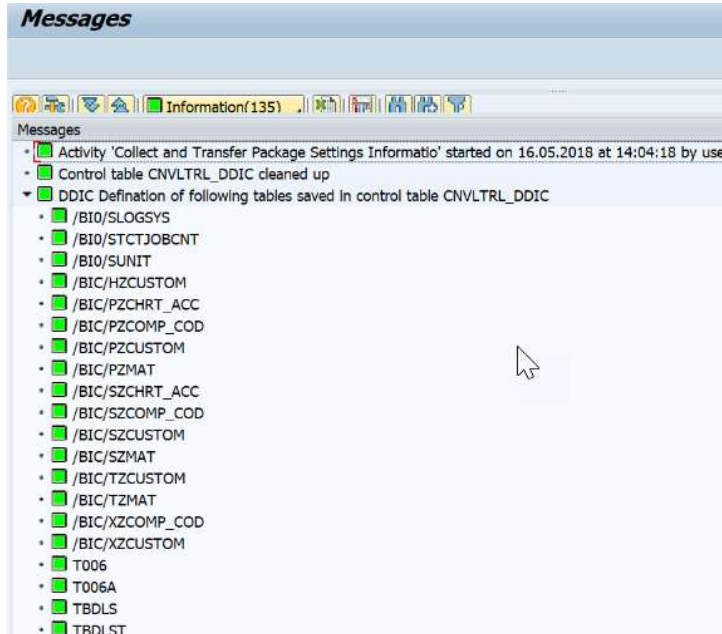
Subactivity Status Overview - Identify BW Table Pools from Data Migr		
Node Text	Status	Subactivities
Show All Subactivities		8
Terminated		0
Completed Successfully		7
Completed With Warnings		1
Completed With Errors		0
Running (In process)		0
Not Yet Started		0

Extended Process Monitor for Package ID 90019

3. Collect and Transfer Package Setting Information

This activity automatically collects and transfers package settings information (stored in control tables) from the original system to the target system.

By choosing the  Execution log information pushbutton, you view the logs to see information about control table names and the number of rows in tables replicated to the target system. These tables and their replicated data are now accessible in the target system.

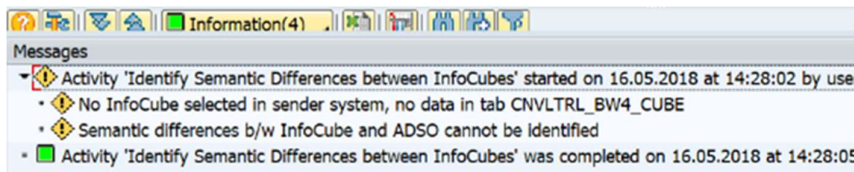


3. Target (Receiver) System Activities

1. Identify Semantic Differences between InfoCube and Datastore Objects (advanced)

This activity checks semantic differences between the InfoCubes mapped to a DataStore objects (advanced).

In this activity, you can check the logs  to see the semantic differences between the InfoCubes and the mapped Datastore objects (advanced). You can also view information at the InfoObject level.



If any InfoObject from source InfoCubes is missing in the mapped Datastore object (advanced) in the target system, that InfoObject entry is highlighted with red severity.

If any InfoObject from the target DataStore objects (advanced) is missing in the

mapped InfoCube in the source system, that InfoObject entry is highlighted with yellow severity.

2. Identify InfoCube for Migration

This activity identifies relevant InfoCubes in the original system that must be converted to Datastore objects (advanced) objects in the SAP BW/4HANA target system. In this activity you can view the logs 📄 to see a list of InfoCubes identified for migration. You can also view the error logs if the table generation for the InfoCubes ended in an error.

3. Generate Dimension and Fact Tables for InfoCubes

This activity automatically generates dimension and fact tables in the target system for the list of InfoCubes you determined in the predecessor activity.

4. Build Table Mapping between Mapped Objects

This activity builds the mapping in the target system between the classic BW objects and HANA-optimized BW objects.

5. Display DDIC differences between Mapped Objects

This activity finds the DDIC differences in the tables mapped in the previous activity. The mapping includes mapping between the classic BW objects and HANA optimized BW objects.

6. Configure MIGSID Conversion Rule for Master Data ID Fields

This activity automatically verifies whether the S table and the RS* tables containing master data already contain data in the target system. If data is present, this activity uses a conversion rule for the Master Data ID (SID) fields to prevent conflicts in the target system.

7. Make Special Settings to Facilitate Program Generation

This activity automatically schedules sub-activities to rectify inconsistencies in the control table of the target system and to assign conversion rules to handle the renaming of request IDs. This activity runs in the target system and automatically executes the following subtasks:

Assigns conversion rules to tables of participating BW objects to handle the conversion old SID-based request to TSN values.

Validates the consistency of the configurations made in predecessor activities for BW objects that are set for migration in the control table. If this activity finds any inconsistencies, it deactivates the BW objects from migration.

4. Conversion Setup (Logical System Rename) Activities

Migration Process	Status	Progress (...)	Tasks	Executio...	Note
BW/4HANA Conversion Cockpit					
Package Settings					
Setup Phase					
Prepare Scope for Data Transfer		100 %		0009	
Sender System				0000	
Receiver System				0000	
Conversion Setup (Logical System Rename)				0000	
Select Conversion-Relevant InfoObjects		100 %		0001	
Identify Conversion-Relevant Tables and Fields		100 %		0001	
Modify Conv-Relevant Customizing for Table-Field Combination		100 %		0001	
Define Mapping Values		100 %		0002	
Validate Mapping Consistency		100 %		0004	
View BW Objects in the Tablepool Browser (Optional)				0000	

6. Select Conversion Relevant InfoObject(s)

In this activity, you can select, which of the InfoObjects that store information of logical systems should be converted. The program reads and writes to the control table. InfoObject OLOGSYS is included by default with the relevant conversion rule. In case there are other InfoObjects holding the same information, you must configure the same in this step.

Select Conversion-Relevant InfoObjects for Package 900P8						
InfoObject	Type	Descript.	X...	InfoObject	Object ...	Descript.
ZCOMP CODE	CHA	Company Code	☒	OLOGSYS	IOBJ	Source System
ZMATERIAL	CHA	Custom Materi	☐	OUSER_NAME	IOBJ	Compounding to OUSER_SYST
			☒	OUSER_SYST	IOBJ	Reference to OLOGSYS

7. Define Mapping Values

In this activity, you can define new values for existing InfoObject values by entering a unique combination of conversion rule and rule version. Additionally, you can check the consistency of your mappings. However, the successor activity "Validate Mapping Consistency" will automatically validate the consistency of the mapping values as well. You can maintain mapping values using this step, based on the conversion rule and rule version assigned in the step "Select Conversion Relevant InfoObject(s)". By default, the mapping rule and version to handle OLOGSYS conversion are predefined.

Mapping Browser						
Excel Upload Add Leading Zeros Add Rules from existing Mapping						
Active Pack.no.	Conversion Rule	Version	Activation	Short text	Customer Resp.	SAP Max length
90019	LOGSYS_NEW	100	X	Automatic		0

8. Make Settings for Conversion-Relevant InfoObjects

By executing this activity, you start a sequence of activities that run in the background. Since each activity automatically starts its successor activity, no further user interaction is required.

Underlined activities will configure settings related to the renaming of OLOGSYS.

If the group activity terminates or ends with errors or warnings, activate the extended view of the process tree. You can now view all activities that belong to the group activity and their statuses.

You have the option to individually execute each activity in extended process tree.

→ Note

It is important that you execute the activities in the defined sequence. We therefore recommend that you work with the standard view and the collective execution functions provided by the SAP BW/4HANA Conversion Cockpit. You can switch to the extended view only if the activity terminates or ends with errors or warnings.

9. Identify Conversion-Relevant Tables and Fields

This activity automatically looks up the Where-Used list for the InfoObjects already selected for conversion. For the list of InfoProviders found in the Where-Used list, the activity builds a pool of tables and fields relevant for conversion.

10. Modify Conv-Related Customizing for Table-Field Combination

This activity uses the data identified by the activity in the predecessor step Identify Conversion-relevant Tables and Field and modifies the data further with table-level information in the original system.

11. Validate Mapping Consistency

This activity automatically carries out various checks to validate the mappings you defined in the predecessor activity Define Mapping Values.

5. View BW Objects in the Tablepool Browser

In this activity, you get a complete view of all the BW objects selected for conversion or migration. Additionally, you can verify the settings made for the participating BW objects before the migration or conversion.

View BW Objects in the Tablepool Browser - 90019 (Infoprovder View)

Information Find Object InfoObjects Rules and Rule Versions Tables

Object	InfoArea	Object Type	In...	Rule	Rule V...	Comments	Activated	Row C...
▼ Data Store Objects (DSO)								
▼ YDSO0014							✓	000000...
▼ /BIC/AYDSO001400	NODESNOTCONN...						✓	000000...
\$MIGRATE				000			✓	000000...
▼ /BIC/AYDSO001440	NODESNOTCONN...						✓	000000...
\$MIGRATE				000			✓	000000...
▶ /BIO/B0000230000							✓	000000...
▼ Persistence Staging Area (PSA) OI								
▼ Master Data								
▶ 0LOGSYS							✓	000000...
▶ 0TCTJOBCNT							✓	000000...
/BIO/STCTJOBCNT							✓	000000...
\$MIGRATE				000			✓	000000...
▼ 0UNIT							✓	000000...
/BIO/SUNIT							✓	000000...
▼ ZCHRT_ACC							✓	000000...
/BIC/PZCHRT_ACC							✓	000000...
/BIC/SZCHRT_ACC							✓	000000...
▶ ZCOMP_COD							✓	000000...
▶ ZCUSTOM							✓	000000...
▶ ZMAT							✓	000000...

View BW Objects in the Tablepool Browser - 90019 (Rule & Rule ver.)

Information Find Object InfoProviders InfoObjects Tables

Object	Object Type	Comments	Activated	Row C...
▼ <EMPTY>-000				
<EMPTY>			✓	000000...
/BIO/B0000230000			✓	000000...
/BIO/SLOGSYS			✓	000000...
/BIO/STCTJOBCNT			✓	000000...
/BIO/SUNIT			✓	000000...
/BIC/AYDSO001400			✓	000000...
/BIC/AYDSO001440			✓	000000...
/BIC/HZCUSTOM			✓	000000...
/BIC/IZCUSTOM				000000...
/BIC/KZCUSTOM				000000...
/BIC/PZCHRT_ACC			✓	000000...
/BIC/PZCOMP_COD			✓	000000...
\$MIGRATE			✓	000000...
/BIC/PZCUSTOM			✓	000000...
\$MIGRATE			✓	000000...
/BIC/PZMAT			✓	000000...
\$MIGRATE			✓	000000...
/BIC/SZCHRT_ACC			✓	000000...
/BIC/SZCOMP COD			✓	000000...

5.5.5 Generation Phase Activities

In the Generation Phase, you can specify the special handling of RS* tables, create sequences for the generation of programs, and generate programs that are later executed to transform the BW objects you selected for your conversion scope.

6. Deactivate InfoProvider Tables Containing Data

This step checks whether DataStore objects (advanced) in SAP BW/4 HANA already contains data. If yes, all the tables of respective DataStore objects (advanced) are excluded from migration. Additionally, this step truncates RS* shadow tables.

7. Generate Program for Data Migration, Conversion or Deletion

This activity picks up the settings from all predecessor preparation activities and generates programs to enable read and transfer of data for all relevant tables.

2. Execute RSRV Check in the Original System

This report creates and executes a package in the standard “Analysis and Repair of BW Objects” transaction RSRV.

You can next load and execute the RSRV analysis package in the RSRV transaction to validate the consistency of BW objects included in the current run.

5.5.6 Preprocessing Programs During System Lock Activities

In the Preprocessing Programs During System Lock phase, you will be able to copy delta queues from SAPI to ODP, validate the migration configuration and configure execution dependencies for migration.

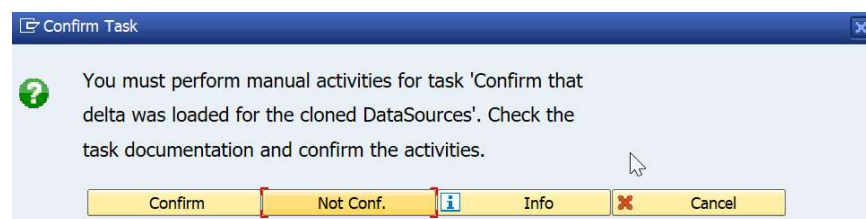
Migration Process		Status	Progress (...)	Tasks	Executio...	Note	Attachment	Log
SAP BW/4HANA Conversion Cockpit								
Package Settings								
Collect Scope and MetaData Transfer								
Setup Phase								
Generation Phase								
Preprocessing Programs During System Lock (Active Phase)								
Copy Delta Queues from SAPI to ODP Technology			100 %		0001			
Confirm that delta was loaded for the cloned DataSources			100 %		0001			
Check Whether Delta Queues Can Be Copied from SAPI to ODP			100 %		0001			
Confirm the INIT SIMU Procedure			100 %		0001			
Make Settings to Prepare to Lock all Data Changes			0 %		0001			
Validate Migration Configuration			100 %		0001			
Synchronize Delta Queues between SAPI and ODP			100 %		0002			
Extract from PSAs of DataSources and Error Stacks			100 %		0001			
Master Data Activation			100 %		0001			
Lock All Data Changes			100 %		0001			
Prepare Request Mapping for Transfer			100 %		0001			
Activate Task Sequences			100 %		0001			
Configure Execution Dependencies for Migration			100 %		0001			
Delete Tasks Assigned to Empty Tables			100 %		0001			
Migration Phase								
Post Processing Activities During System Lock								
System Settings After Migration								

1. Copy Delta Queues from SAPI to ODP Technology

This activity clones the delta queues in the connected BW source systems in order to switch to Operational Data Provisioning (ODP) technology for data extraction. Open the "Change Parameters" dialog in the parameter column of this task. The new logical system name of the BW system to be copied will automatically be read from the new target system. Confirm that the name is correct.

2. Confirm that delta was loaded for the cloned DataSources

This activity asks for confirmation of the task "Confirm that delta was loaded for the cloned DataSources". This is because the "Synchronize Delta Queues between SAPI and ODP" task can only run successfully, if delta requests for all relevant DataSources have been processed correctly in the source systems.



→ Caution

Do not confirm the task yet. You first have to trigger delta-requests in the original SAP BW system for all delta queues that have been cloned in the previous task. This task is not automated.

You can wait until the regularly scheduled process chains are executed or schedule process chains or InfoPackages manually. It is not necessary to block transactions in the source systems or to empty the delta queues completely. However, the deltas recorded before cloning the delta queues must be replicated before the next task can be completed.

3. Check Whether Delta Queues Can Be Copied from SAPI to ODP

This activity automatically checks whether delta queue copy from SAPI to ODP is successful for the data sources in the connected source systems. The activity logs the results of the checks in the activity logs.

4. Confirm INIT SIMU Procedure

If the predecessor step “Check Whether Delta Queues Can Be Copied from SAPI to ODP” ends with an error, it indicates that the delta queue cloning is not possible for DataSources in the connected source systems. For all such DataSources, you need to manually simulate the initialization of the delta procedure without actual data transfer.



5. Make Settings to Prepare to Lock all Data Changes

This is a group activity (see 5.4.5 Individual and Group Activities). Underlying activities will perform steps such as synchronize delta queues between SAPI and ODP, master data activation, lock BW objects for all data changes and activate task sequences.

1. Validate Migration Configuration

This activity automatically checks whether the configuration of BW objects set for migration is consistent in the target system.

2. Synchronize Delta Queues and Lock All Data Changes

'Synchronize Delta Queues between SAPI and ODP'. This activity synchronizes the cloned delta queues in the connected SAP BW Source Systems.

The creation of delta and repeat requests is locked. This means that you then cannot load delta anymore for the DataSources in scope until the task “Unlock Loading and Data Target Changes” is executed.

Next, a check is performed to determine whether delta requests have been triggered and completed. If this is not the case, the creation of delta and repeat requests is unlocked again, and an error is raised. In this case, you need to check the request status in transaction RSRQ and create additional delta requests where necessary (or repeat requests) for the DataSources mentioned in the error message.

Finally, the queues of the original and new delta queues and subscriptions are synchronized (for SAPI to ODP cloning). This means that the data which has been loaded into the old DataSource after cloning is marked as read for the new DataSource and discarded so that it is not loaded double via the new DataSource. This is necessary in order to have a sharp cut between data loaded and data not yet loaded into the target. For ODP to ODP cloning, the cloning is done in this task only, since it works on TSN's and the sharp cut between loaded data and data that has not been loaded yet

can also be guaranteed without intermediate loading.

3. Extract from PSAs of DataSources and Error Stacks

This activity performs the necessary preparations for old InfoProviders:

Execute all delta DTPs extracting from the PSA of a DataSource if this PSA will not be transferred as a field-based DataStore objects (advanced). In this case, all requests from the PSA must be propagated into InfoProviders by delta DTPs.

(Create if necessary, and) execute error DTPs for all non-empty error stacks. Even if the error DTP requests fail, the error stack will be emptied. The error stacks must be empty, as they are not transferred.

4. Master Data Activation

This activity performs the necessary preparations such as master data activation.

5. Lock All Data Changes

This activity locks all InfoProvider in scope in the original system against all data changes. The data in the InfoProviders is now ready for copy into the receiver system.

6. Prepare Request Mapping for Transfer

This task fills the mapping table RSB4HPREQUESTMAP between Request GUID, Request SID and TSN for all request types of an InfoProvider.

7. Activate Task Sequences

This report activates the migration sequences and after this activity you can execute the migration. The reason for that is to avoid any possible accidental migration execution.

8. Configure Execution Dependencies for Migration

This activity automatically configures table, task, and sequence dependencies for migration.

9. Delete Tasks Assigned to Empty Tables

This activity automatically locates and deletes the tasks of empty tables in the original system and tables that are set as inactive in the target system.

5.5.7 Migration Phase Activities

In the Migration Phase, the **actual migration** of data takes place in the respective tables of the BW objects. The data is read from the tables in the original system and is stored in the

Further in target system, conversion tasks will read the data from the cluster and write to HANA-optimize BW objects, and also convert request management (from Request IDs to Request Transaction Sequence Numbers).

1. Make Runtime Settings for Migration

Additionally, you specify different number of jobs for a single table, to be execute in the original and target systems.

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Realizing the Remote Conversion

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2. Start Migration

The purpose of this activity is to start the migration tasks in the background jobs. This activity automatically starts the read tasks and cluster transfer tasks in the original system and convert record tasks in the target system.

→ Caution

Do not start the tasks from the transactions SA38 or SE38 as the sequence of the read tasks, cluster transfer tasks, and convert record tasks is critical to the successful execution of this activity.

3. Monitor Transformation Status (Optional)

This activity displays an overview of the conversion/migration status, grouped by BW objects (InfoCube, Datastore objects, DataStore objects (advanced), master data, PSA, and customer-specific tables). Alternatively, you can use the transaction code CNVLTRL_MONI_C to open the monitor.

BW Objects	Read Status	Read %	Records Read	Relevant Records	Move Cluster Status	Mig. Status	Mig. %	Records Processed	Post-Trans. Proc. Status
InfoCubes	Completed	100	92	92	Completed	Completed	100	92	Completed
• ZECUBE1	Completed	100	23	23	Completed	Completed	100	23	Completed
• ZECUBE	Completed	100	23	23	Completed	Completed	100	23	Completed
• ZCUBOF2A	Completed	100	23	23	Completed	Completed	100	23	Completed
• ZCUBOF2	Completed	100	23	23	Completed	Completed	100	23	Completed
Data Store Objects (DSO)	Completed	100	190	190	Completed	Completed	100	190	Completed
• ZWDSOOF2	Completed	100	19	19	Completed	Completed	100	19	Completed
• ZWDSOOF2A	Completed	100	19	19	Completed	Completed	100	19	Completed
• ZECWDSO	Completed	100	0	0	Completed	Completed	100	0	Completed
• ZECDSO1	Completed	100	38	38	Completed	Completed	100	38	Completed
• ZECDSO	Completed	100	38	38	Completed	Completed	100	38	Completed
• ZDSOOF2A	Completed	100	38	38	Completed	Completed	100	38	Completed
• ZDSOOF2	Completed	100	38	38	Completed	Completed	100	38	Completed
Master Data	Completed	100	268	261	Completed	Completed	100	254	Completed
Persistence Staging Area (PSA) Objects	Completed	100	19	19	Completed	Completed	100	19	Completed
• ZECDTASRC	Completed	100	19	19	Completed	Completed	100	19	Completed
• /BI0/B0003460000	Completed	100	19	19	Completed	Completed	100	19	Completed
Customer-Specific Tables	Completed	99	66.058.539	66.058.539	Completed	Completed	99	29.034.384	Completed
• All Tables	Completed	99	66.058.539	66.058.539	Completed	Completed	99	29.034.384	Completed
• RSPMHKLOG	Completed	0	0	0	Completed	Completed	0	0	Completed
• RSPMHKDATAID	Completed	0	0	0	Completed	Completed	0	0	Completed
• RSPMDTASELECTION	Completed	0	0	0	Completed	Completed	0	0	Completed
• RSPMDATATARGET	Completed	0	0	0	Completed	Completed	0	0	Completed

After executing the “Monitor” step, a screen is displayed with details of participating BW objects and their related tables.

Data of InfoObjects (master data) and transparent tables (customer-specific) is already moved, because such a transfer is a prerequisite before initiating the data transfer of InfoProviders.

4. Confirm Data Selection and Unlock Data Loading

In this activity, you can confirm that the read tasks in the Migration Phase are successfully completed in the original system.

You can also confirm the removal of locks on DataSources and InfoProviders in the scope of migration and allow the resumption of operations on the BW objects.

5. Verify Task Completion

This activity checks the progress of the running tasks whether all of them are finished and if one can continue with the next phase or not. You can view the logs to see the runtime status of tasks for data transformation.

5.5.8 Post Processing Activities During System Lock Activities

In this phase, you can execute some important post-processing activities for remote conversion such as rebuilding BI hierarchy tables or adjusting number ranges.

Migration Process	Status	Progress (...)	Tasks	Executio...	Note	Attachment	Log
▼ SAP BW/4HANA Conversion Cockpit							
▶ Package Settings	■						
▶ Collect Scope and MetaData Transfer	■						
▶ Setup Phase	■						
▶ Generation Phase	■						
▶ Preprocessing Programs During System Lock	■						
▶ Migration Phase	■						
▼ Post Processing Activities During System Lock (Active Phase)	■						
▼ Rebuild Hierarchy and Reset Number Ranges	■	100 %		0001			🔗
• Rebuild Hierarchy tables (/BI+/H*, /BI+/I*)	■	100 %		0001			🔗
• Reset Number Ranges	■	100 %		0003			🔗
• Set All Queries for Generation	■	100 %		0001			🔗
• Execute RSRV Checks in the Target System				0000			
• View Time-Related Migration Statistics (Optional)				0000			
▶ System Settings After Migration							

1. Rebuild Hierarchy and Reset Number Ranges

This is a group activity (see 5.4.5 Individual and Group Activities). Underlying activities will perform steps such as rebuild hierarchy tables (/BI+/H*, /BI+/I*), reset number ranges and set all queries for generation.

1. Rebuild Hierarchies tables (/BI+/H*, /BI+/I*)

This activity executes in the target system and it automatically determines the relevant InfoObjects that require the rebuilding of hierarchy tables. The results of the activity execution can be seen in the activity logs.

2. Reset Number Ranges

This activity automatically adjusts the number ranges after migration for BW objects participated in the migration.

3. Set All Queries for Generation

This activity automatically sets the BW queries to be generated once again before the first execution of the queries.

2. Execute RSRV Checks in the Target System (Optional)

This report creates and executes a package in the standard “Analysis and Repair of BW Objects” transaction RSRV.

You can load and execute the RSRV analysis package in the RSRV transaction to validate the consistency of BW objects included in the current run.

5.5.9 System Settings After Migration Activities

The final phase consists of some clean-up tasks and setting the package status to “completed”.

Migration Process	Status	Progress (...)	Tasks	Executio...	Note	Attachment	Log
▼ SAP BW/4HANA Conversion Cockpit							
▶ Package Settings	■						
▶ Collect Scope and MetaData Transfer	■						
▶ Setup Phase	▲						
▶ Generation Phase	▲						
▶ Preprocessing Programs During System Lock	▲						
▶ Migration Phase	■						
▶ Post Processing Activities During System Lock (Active Phase)	■						
▼ System Settings After Migration							
• Truncate Generated InfoCube Tables (Optional)				0000			
• Delete Data Clusters in the Active Package (Optional)				0000			
• Set Package Status to Completed		0 %		0000			

1. Truncate Generated InfoCube Tables (Optional)

This activity automatically truncates the data of temporary tables in the target system such as dimension and fact tables for InfoCubes, and shadow tables used for BW administration runtime tables.¹⁶

2. Delete Data Clusters in the Active Package (Optional)

This activity refreshes the generated cluster tables in the original and target systems.

When the tables are refreshed, the cluster data in the tables are deleted in both the original and target systems.

You can specify a time for the deletion or choose to delete the cluster data immediately.

¹⁶ Until this point in time, both the transferred F- (E-) and new advanced DataStore tables exist in the target system. The truncation of these tables should be done after verification of the data in the target system.

Delete Cluster Data from the Table	
	
Execution	
Package Number	90019
Delete Cluster Action	
☒ Delete Immediately ☐ Select a Date	
Date	09.03.2019

→ Note

Immediate deletion of cluster entries is not recommended, as this will diminish the options to troubleshoot any data related issues. Therefore, by default, a 60-day delay is configured for the cluster deletion is configured.

3. Set Package Status to Complete

Having completed all activities in the package as well as the corresponding application tests, you can close the package. When you do so, the system sets the final status for the package and deactivates it.

5.6 Transfer of APD Processes

The APD Transfer Tool can be used to convert APD processes in SAP BW into process chains in SAP BW/4HANA. For details, see the corresponding chapter for in-place conversion).

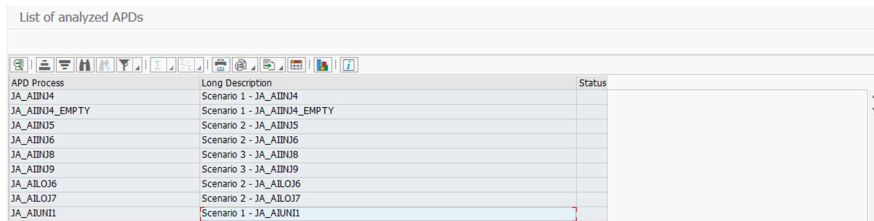
Procedure:

1. Start the APD Transfer Tool in the original SAP BW system (transaction RSB4HAPD).
2. If your APD process was not analyzed yet, select "Run APD Analysis" button.
3. In the overview screen, you see statistical data for all analyzed APD processes. Only APD process with assigned transfer category "Supported by Transfer Tool" or "Manual Adjustment" can be transferred using the tool. All other APD processes must be modified (and analyzed again) or converted manually.
4. You can review proposed structure of the process chain by double click on an APD process name. During a remote conversion, it is not possible to assign any names for data flow, change generation settings or generate the data flow.
5. Select "Transfer All APD Metadata" button. A popup will appear asking for the connection information to your SAP BW/4HANA system.
6. Provide a valid RFC destination of your target SAP BW/4HANA system.

Note: The APD Transfer Tool and SAP Notes related to remote conversion must be installed on the SAP BW/4HANA system already.

7. Select OK. The system will execute the transfer of analyzed APD metadata to the target system. Only analyzed APD processes with category of "Supported by Transfer Tool"

- and "Manual Adjustments" will be transferred. Any existing APD metadata on target system will be overwritten. If you do not wish to overwrite already transferred APD metadata, you can invoke transfer for a single analyzed APD process from detail view
8. After the transfer is finished, a success message is displayed:
 **APD process metadata successfully transferred to 'KIWCLNT000'.**
 9. Before continuing in APD Transfer Tool, conversion run should be already finished.
 10. Log into the target SAP BW/4HANA system.
 11. Start the APD Transfer Tool (transaction RSB4HAPDR).
 12. A list of all imported APD process metadata is displayed.



APD Process	Long Description	Status
JA_AINU4	Scenario 1 - JA_AINU4	
JA_AINU4_EMPTY	Scenario 1 - JA_AINU4_EMPTY	
JA_AINU5	Scenario 2 - JA_AINU5	
JA_AINU6	Scenario 2 - JA_AINU6	
JA_AINU8	Scenario 3 - JA_AINU8	
JA_AINU9	Scenario 3 - JA_AINU9	
JA_AILOJ6	Scenario 2 - JA_AILOJ6	
JA_AILOJ7	Scenario 2 - JA_AILOJ7	
JA_AIBUN11	Scenario 1 - JA_AIBUN11	

13. Double click on the APD process that you want to transfer to a process chain.
14. A detailed view of the APD process and proposed process chain is shown.
15. To execute the transfer, follow the same procedure as described for an in-place conversion.

5.7 Transfers of Standard Authorizations

User roles including standard SAP BW authorizations can be converted by transporting the original roles to SAP BW/4HANA and then using the Authorization Transfer Tool to adjust the standard authorizations as required.

Procedure

1. Start the Role Maintenance in SAP BW (transaction PFCG).
2. Transport the necessary roles to SAP BW/4HANA.
3. Run program RS_B4HTAU_CREATE_RUN in SAP BW/4HANA.
4. Proceeds similar to an in-place conversion (see 4.7 Preparing Transfers of Standard Authorizations and 4.9 Executing Transfers of Standard Authorizations). However, for the remote conversion there is no differentiation between initial and delta run. Authorization roles are transferred ones, "converted" and assigned to the users.¹⁷

5.8 List of Object-Specific Conversion Activities

The following sections of this guide describe object-specific conversion tasks. Prerequisite is that all preparation tasks (especially, items listed in chapter 3.13 and 3.13.5) have been completed.

¹⁷ The program RS_B4HTAU_CREATE_RUN exchanges the authorization objects; obsolete objects and/or transaction codes are not removed.

Conversion Tasks per Application Area		Reference
Data Acquisition	Myself Source System SAP Source Systems BW Source Systems S-API DataSources	Convert using Conversion Cockpit
Data Warehousing	InfoCubes DataStore Objects (classic) InfoSets MultiProviders	Convert using Conversion Cockpit
Analytic Engine	Queries	Convert using Conversion Cockpit
Integrated Planning	All BW-IP/PAK objects	See SAP Note 2602319
Business Planning and Consolidation – Embedded	All objects	See SAP Note 2602319
Business Planning and Consolidation – Standard	All objects	Backup and Restore (see BPC documentation)
Security	Standard Authorizations	Transport roles and convert using Authorization Transfer Tool in target system (see chapter above)
	Analysis Authorizations	Transport
Analysis Process Designer	APD Processes	Convert using APD Transfer Tool (see chapter above)
All other objects		Manual re-creation

5.9 Custom Code Adjustments

For more information, see details related to custom code analysis and necessary adjustments when converting to SAP BW/4HANA, see SAP Note [2462639](#).

→ Note

In a remote conversion, custom developments can be transported from SAP BW to the SAP BW/4HANA target system. This might lead to syntax errors when importing the transports (for example, if standard SAP objects are references that do not exist in SAP BW/4HANA).

You will either have to adjust the code in the original system (for example, comment out the code in question) or ignore the errors and adjust the code in the target system.

5.10 Validating the Remote Conversion

After you complete the transfer of all required objects, developments, and configuration, you should validate that the corresponding HANA-optimized BW objects have been created correctly in the target system. We also recommend that you test whether all objects, including queries and process chains, work well in your new SAP BW/4HANA system.

As the remote conversion allows you to preserve your original SAP BW System, you should be able to compare the old data and objects in the original system and the new data and objects created in your new target system.

→ Note

HANA-optimized objects are mapped to classic objects 1:1 and created with same naming convention.

For detailed information related to functionality available in SAP BW but replaced or deleted in SAP BW/4HANA please refer to the [Simplification List](#) or to the [Simplification Item Catalog](#).

1. Start the BW Modeling Tools for your system
2. Choose the option “BW Project” and add the target system you want to validate
3. After adding the system, you can search for your BW objects using the Search feature
4. Verify that the corresponding HANA-optimized BW objects that you selected in the Prepare Scope for Data Transfer activity are properly transformed and transferred to the target system.

5.11 General Follow-on Activities

There are a few general follow-on activities required and some object-specific activities necessary (see next chapter).

Follow-on Tasks		Reference
Object Directory Entries (custom development)	After transporting custom development objects (for example, DDIC or ABAP),	SAP Notes 2458155 and 2690211

	you have to adjust the original system in the object directory (TADIR).	
Object Directory Entries (SAP BW objects)	After performing a scope transfer of SAP BW objects (for example, InfoObjects and DSOs), you have to adjust the original system in the object directory (TADIR).	SAP Notes 2458155 and 2690211

5.12 List of Object-Specific Follow-On Activities

The list below contains important object-specific follow-on steps and where to find their documentation.

→ Note

This list contains an overview of important steps you may need to do after the conversion process, but it is not complete. You find the complete list of conversion-relevant items in the Simplification List, as explained in the overview.

Follow-on Tasks per Application Area		Reference
Security	Adjust user roles using the Authorization Transfer Tool	SAP Note 2468657
BW Queries	Adjust queries containing technical InfoObjects like Request ID (OREQUID) or audit fields (OAMODE, OAUSER, OASOURCE, OATIMSTMP) that are not supported by SAP BW/4HANA anymore	SAP Note 2479683

6 Realizing the Shell Conversion

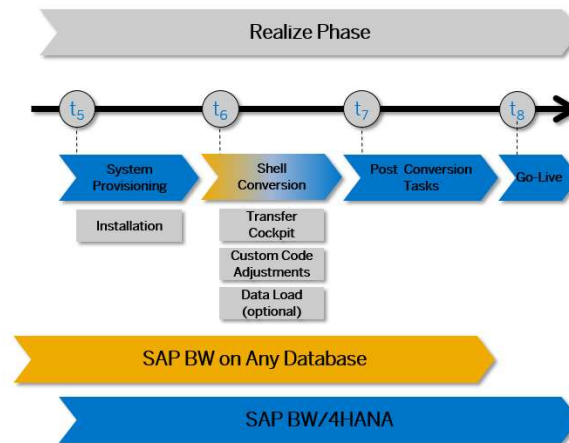


Figure 12: Realization Phase of Shell Conversion to SAP BW/4HANA

After the preparation phase, you start with the realization of the shell conversion to SAP BW/4HANA by provisioning a new SAP BW/4HANA system, using the SAP BW/4HANA Transfer Cockpit, and making custom code adjustments. Optionally, you can load data from the original SAP BW or original source systems. For a brief overview of the entire process, see Overview of the Conversion Process.

→ Note

You find the general follow-on steps in this guide; you get the object-specific follow-on steps with the pre-check and custom-code checks and with the Simplification List for SAP BW/4HANA. Some of the most important application-specific preparation steps are also listed in this section: List of Object-Specific Follow-On Activities.

The shell conversion is in parts similar to in-place conversion and in parts similar to remote conversion. Therefore, we reference the corresponding section of these conversion options rather than repeat the identical text.

6.1 Provisioning SAP BW/4HANA System

See Remote Conversion, chapter 5.1 Provisioning SAP BW/4HANA System.

The installation of the DMIS-Addon is not required for the Shell Conversion.

6.2 Updating System Landscape using SAP BW Note Analyzer

After installations of the SAP BW/4HANA, it is necessary to update the system landscape to the latest version of the SAP BW/4HANA Transfer Cockpit. This is achieved by running SAP BW Note Analyzer with the corresponding XML file and implementing all required SAP Notes. For more details, see chapter 7.1.4 Landscape Preparation for Shell Conversion.

→ Note

SAP is continuously updating the tools required for conversion. Therefore, it is highly recommended to update the SAP BW/4HANA Transfer Cockpit on a regular basis by running SAP BW Note Analyzer with the most recent XML files attached to SAP Note [2383530](#).

6.3 List of Object-Specific Conversion Activities

See In-place Conversion, chapter 4.5 List of Object-Specific Conversion Activities.

6.4 Object Transfer Using Scope Transfer Tool

6.4.1 General Features

See In-place Conversion, chapter 4.8 Object Transfer Using Scope Transfer Tool.

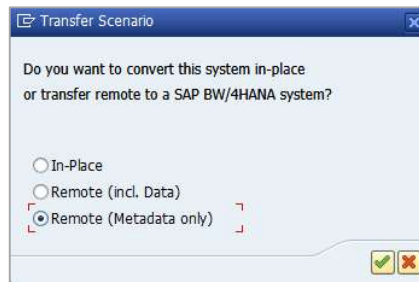
6.4.2 Perform a Scope Transfer

Prerequisites

You need authorization for authorization objects S_RS_B4H, S_TC, S_RFC, and S_RFC_ADM. You also need authorization to read any object selected for the transfer. A consolidated list of authorization objects and values required for shell conversion is attached to SAP Note [2383530](#) (same as for remote conversion).

Procedure

1. Start the SAP BW/4HANA Transfer Cockpit using transaction RSB4HTRF. You can choose between in-place, remote, or shell conversion:



2. Select "Remote (Metadata only)" to continue.



Choose whether you want to create a new conversion run or show the results of a previous conversion.

→ Tip

If you run multiple conversions, it makes sense to create variants using well thought out naming conventions. This will later help to distinguish between various conversion runs.

3. For each conversion run, you first have to select the scope i.e. which objects should be converted.

Maintain Task List Run SAP_BW4_TRANSFER_REMOTE_SHELL_20180615100500010

Task List: SAP_BW4_TRANSFER_REMOTE_SHELL Tasks for Activities to be performed in original system of shell BW4-Transfer

Task List Run: SAP_BW4_TRANSFER_REMOTE_SHELL_20180615100500010

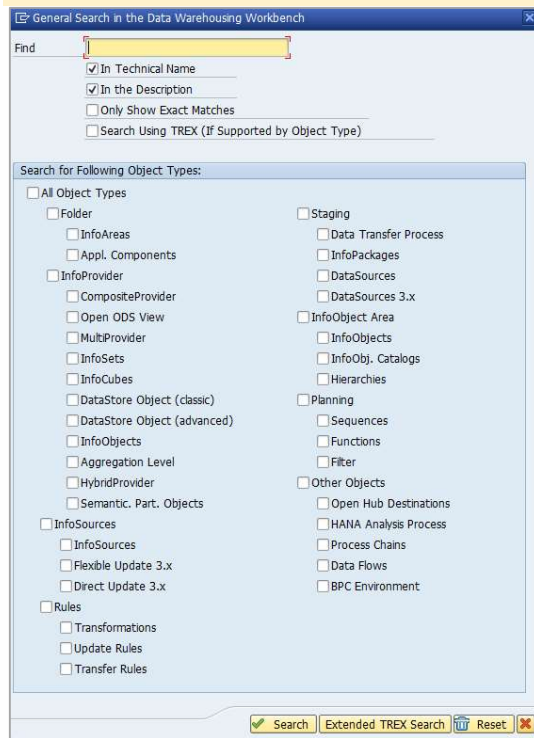
Execute	Check Status	Status	Log	Autom. Phase	Component	Task Description	Help	Parameter	Parameter Description
☒	☐	☐		Scope definition	BW	Collect Scope for Transfer (Data Flow)			
☒	☐	☐		Scope definition	BW	Define Object Mapping and Store Object List			
☒	☐	☐		Prepare	BW	Map InfoObjects for InfoProvider			
☒	☐	☐		Prepare	BW	Select Main Partition Criteria for Semantically Partitioned Object			
☒	☐	☐		Prepare	BW	Determine Usage of Involved Objects			
☒	☐	☐		Prepare	BW	Checklist for Usage of Involved Objects			

4. Select "Add New Object" and search for the objects you want to use as a starting point for determining the conversion scope:

→ Note

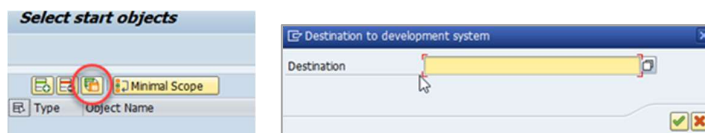
At least one object has to be included in the list. Also, an object can be included in only one open task list run. Trying to process an object that is included already in another task list run, will lead to an error and you will have to finalize the other task list

run first before the object can be included again in a scope selection.



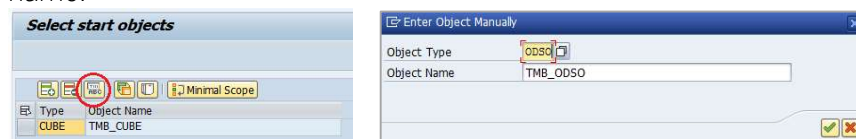
Alternative ways to populate the scope list:

- Copying the scope from another system. This will transfer the initial scope selection between systems (typically from development to test or production).



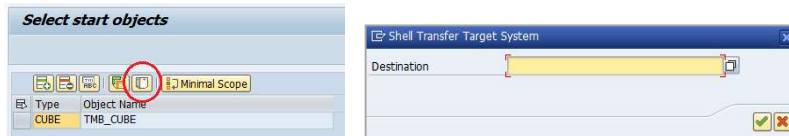
The remote system will be scanned for start objects in all finalized task list runs that also have been converted.

- Manually entering objects. The system will ask for object type (TLOGO) and name.



To limit the scope to the least number of objects based on dependencies, you can select “Minimal scope”. This option allows to separate the transfer of the reporting layer from the transfer of the staging layer. This way you can, for example, convert a MultiProvider to a CompositeProvider without selecting the Part Providers of the MultiProvider.

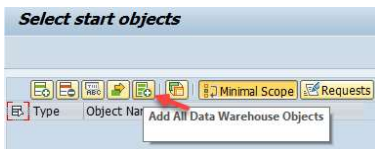
You must also specify the target system for the shell conversion. Select or enter the RFC destination of the SAP BW/4HANA system:



Special features within the scope selection:

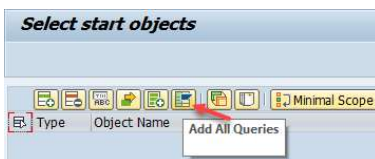
- Select All Data Warehouse Workbench Objects

In case all BW objects have to be transferred to the receiver system this option enables you to select all objects without selecting them data model by data model.



- Select All Queries

In order to select all queries as a starting point for a scope selection and transfer this option can be used.



5. Save your selection and return to the task list.
6. Continue the task list run by selecting “Execute”.

The task list will continue and stop at the next step.

E...	C...	S...	L...	Autom.	Phase	Comp.	Task Description	H...	P...	Parameter Description
☐	☒	☒	☒	Scope definition	BW		Collect Scope for Transfer (Data Flow)	☒	☒	CUBE:TMB_CUBE
☒	☒	☒	☒	Scope definition	BW		Define Object Mapping and Store Object List	☒	☒	
☒	☒	☒	☒	Prepare	BW		Map InfoObjects for InfoProvider	☒	☒	
☒	☒	☒	☒	Prepare	BW		Select Main Partition Criteria for Semantically Partitioned Object	☒	☒	
☒	☒	☒	☒	Prepare	BW		Determine Usage of Involved Objects	☒	☒	
☒	☒	☒	☒	Prepare	BW		Checklist for Usage of Involved Objects	☒	☒	

7. Define the object mapping.

Example of object list and mapping: InfoCube mapped to DataStore object (advanced):

Maintain Object List						
Original	Original Object Name	Description	Package	New T...	New Object Name	Tr. Special O
CUBE	TMB_CUBE	Test	ZZZZ	ADSO	TMB_CUBE	☒

You can select and deselect objects for the transfer using a checkbox.

Particular cases:

- For classic DataStore Objects or InfoCubes that contain navigation attributes and these attributes are used in at least one query, the transfer requires the introduction of a new CompositeProvider. You can specify the name of the CompositeProvider.
- For standard DataStore Objects, you can select in the “Special Options” column whether to transfer the full change log or minimize the change log i.e. take over only requests relevant for delta processing.
- For processes containing a Persistent Staging Area (PSA), you have the option to convert the PSA into a DataStore Object (advanced) or to ignore the PSA. You can specify the name of the DataStore Object (advanced).
- When selecting S-API DataSources for the first time, you have the option to provide a name for the ODP Source System.
- For steps in process chains, which are not available (i.e. obsolete) in SAP BW/4HANA, you can select in the “Special Options” column whether to delete these steps or not. The before and after steps are automatically reconnected to keep the process chain intact.

8. Create a transport of copies for the selected objects (F5).

Request maintenance

Collection has many objects; you may maintain up to four requests.
Transport the requests in the exact sequence like given below.
Select the request to create or maintain and confirm.

☒ <not created yet>

☐ <not created yet>

☐ <not created yet>

☐ <not created yet>

Request maintenance

Collection has many objects; you may maintain up to four requests.
Transport the requests in the exact sequence like given below.
Select the request to create or maintain and confirm.

☒ CIAK920236: CUBE:TMB_CUBE

☐ <not created yet>

☐ <not created yet>

☐ <not created yet>

9. Save your mapping and return to the task list.

10. Continue the task list run by selecting “Execute”.

The task list will continue.

11. The task list will stop at the end of the prepare phase.

E	C	S	L	Autom. Phase	Comp.	Task Description	H	P	Parameter Description
☐	☒	☒	☒	Scope definition	BW	Collect Scope for Transfer (Data Flow)			CUBE-TMB_CUBE
☐	☒	☒	☒	Scope definition	BW	Define Object Mapping and Store Object List			
☐	☒	☒	☒	Prepare	BW	Map InfoObjects for InfoProvider			
☐	☒	☒	☒	Prepare	BW	Select Main Partition Criteria for Semantically Partitioned Object			
☐	☒	☒	☒	Prepare	BW	Determine Usage of Involved Objects			
☒	☒	☒	☒	Prepare	BW	Checklist for Usage of Involved Objects			

Maintain the parameters to view, adjust, and confirm usage of the involved objects in custom coding, Business Add-ins (BAdIs), or authorizations.

→ Tip

Conversion of classic to advanced DataStore Objects generates so called “compatibility views” for the activation queue and active data table of the classic DataStore object. This will reduce the effort to adjust custom coding. SAP Note [2539205](#) is required.

CheckList for Customer Coding						
Resolved	Status	Check Again	Object Type	Object Name	Where Used	Show Details
☒			BADI	*		
☒			AUTH	*		

You have to check all occurrences and mark them as “resolved” in order to continue.

→ Note

If you do not resolve issues in custom code, this might lead to syntax errors and prevent the successful activation of the transferred objects.

12. Continue the task list run by selecting “Execute”.

You can find the description of the individual tasks in task list SAP_BW4_TRANSFER_REMOTE_SHELL (transaction STC01).

Next Steps

You can monitor previous task list runs using the Task List Monitor (transaction STC02).

Import the generated transport of copies into your SAP BW/4HANA system (see chapter 7.2.4 Change Management for Shell Conversion).

6.5 Custom Code Adjustments

See Remote Conversion, chapter 5.9 Custom Code Adjustments.

6.6 Data Transfer (Optional)

You have a choice of data transfer methods:

- Re-load data from original data sources or
- Load data from original SAP BW system or
- Ignore historical data and start fresh

For each DataStore object (advanced), you can select a different option. For the first two options, you can also decide loading all of the historical data or only a selected set.

6.7 General Follow-on Activities

See Remote Conversion, chapter 5.11 General Follow-on Activities.

6.8 List of Object-Specific Follow-On Activities

See Remote Conversion, chapter 5.12 List of Object-Specific Follow-On Activities.

7 Appendix

7.1 Landscape Preparation

7.1.1 General Procedure

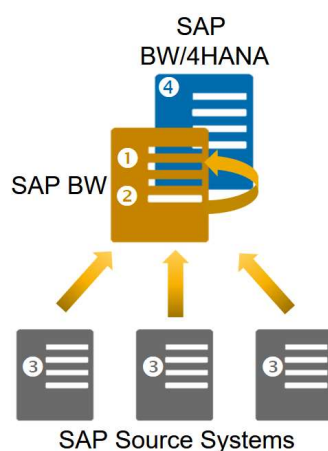
Complete landscape preparation and installation process is supported by the SAP BW Note Analyzer. For more detailed instructions on how to use the Note Analyzer, see the “User Guide for SAP BW Note Analyzer” at help.sap.com/bw4hana10.

The SAP BW Note Analyzer provides a clear and consistent process to update a particular component of SAP BW or SAP BW/4HANA without implementing support packages. The Note Analyzer is used to install all tools and updates required for a successful conversion from SAP BW to SAP BW/4HANA (Pre-check, Transfer Cockpit, required ODP and SAP BW/4HANA updates).

Procedure

1. Open SAP Note [2383530](https://support.sap.com/en/notes/2383530).
2. Download the ZIP file attached to this SAP Note. It includes the most recent code for the SAP BW Note Analyzer as well as the content (XML files) for all installation scenarios.
3. Implement the SAP BW Note Analyzer in all development systems of your landscape.
4. Create a Remote Function Call Connection to SAP (if not available already).
5. Run SAP BW Note Analyzer in each development system with the content (XML file) corresponding to the installation scenario (see following sections).
6. To complete an installation scenario, all traffic lights in the result of the Note Analyzer must be green. In case of yellow or red lights, follow the given instructions.

7.1.2 Landscape Preparation for In-place Conversion



Preparation Phase

- ❶ Install **Pre-check** in original SAP BW system *

Realization Phase

- ❷ Install **Transfer Cockpit** in original SAP BW system *
- ❸ Install **ODP updates** in each SAP source system
- ❹ Install **SAP BW/4HANA updates** (after system conversion)

Complete installation process is supported by the **SAP BW Note Analyzer**

* For SAP BW 7.5, installation of Pre-check and Transfer Cockpit are combined.

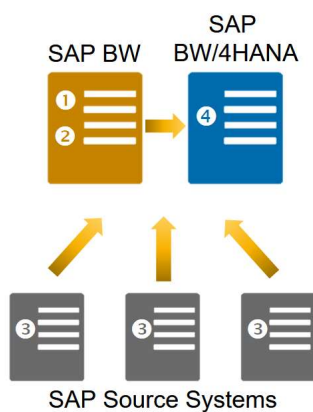
Install [Pre-check Tool](#) in [Preparation Phase](#)

- ❶ For SAP BW from 7.0 to 7.4, use [SAP_BW4HANA_Pre_Checks_\[last_update\].xml](#)
- ❶ + ❷ For SAP BW 7.5, the pre-checks cannot be installed isolated but are bundled with the Transfer Cockpit, use [SAP_BW4HANA_Conversion_SAP_BW_750_\[last_update\].xml](#)

Install [Transfer Cockpit](#) and Perform an [In-place Conversion](#) in [Realization Phase](#)

- ❷ For SAP BW 7.5 and in-place conversion, if you start now with the installation of the tool, use [SAP_BW4HANA_Conversion_SAP_BW_750_\[last_update\].xml](#). If you have already installed most of the notes before and only want the latest updates, continue to use [SAP_BW4HANA_In-place_Conversion_\(Original_System\)_\[last_update\].xml](#).
- ❸ For source systems connected to SAP BW, use [Source_System_for_SAP_BW4HANA_\[last_update\].xml](#)
- ❹ After the conversion to SAP BW/4HANA, use [SAP_BW4HANA_In-place_Conversion_\(After_System_Conversion\)_\[last_update\].xml](#)

7.1.3 Landscape Preparation for Remote Conversion



Preparation Phase

- ❶ Install [Pre-check](#) in original SAP BW system

Realization Phase

- ❷ Install [Transfer Cockpit](#) and [DMIS add-on \(Conversion Cockpit\)](#) in original SAP BW system
- ❸ Install [ODP updates](#) in each SAP source system
- ❹ Install [Transfer Cockpit](#) and [DMIS add-on \(Conversion Cockpit\)](#) in target SAP BW/4HANA system

Complete installation process is supported by the [SAP BW Note Analyzer](#)

Install [Pre-check Tool](#) in [Preparation Phase](#)

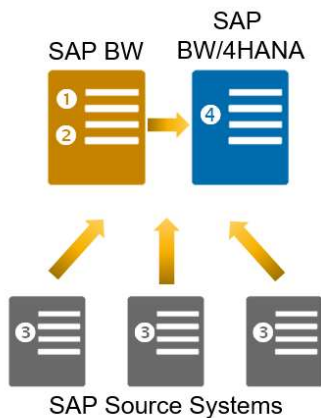
- ❶ For SAP BW from 7.3 to 7.4, use [SAP_BW4HANA_Pre_Checks_\[last_update\].xml](#)
- ❶ + ❷ For SAP BW 7.5, the pre-checks cannot be installed isolated but are bundled with the Transfer Cockpit, use [SAP_BW4HANA_Conversion_SAP_BW_750_\[last_update\].xml](#)

Install [Transfer & Conversion Cockpit](#) and Perform a [Remote Conversion](#) in [Realization Phase](#)

- ❷ For SAP BW from 7.3 to 7.4 acting as sending system for a remote conversion, use [SAP_BW4HANA_Remote_Conversion_\(Original_System\)_\[last_update\].xml](#).
For SAP BW 7.5, use [SAP_BW4HANA_Conversion_SAP_BW_750_\[last_update\].xml](#).

- ③ For source systems connected to SAP BW, use [Source_System_for_SAP_BW4HANA_\[last_update\].xml](#)
- ④ For SAP BW/4HANA acting as receiving system for a remote conversion, use [SAP_BW4HANA_Remote_Conversion_\(Target_System\)_\[last_update\].xml](#)

7.1.4 Landscape Preparation for Shell Conversion



Preparation Phase

- ① Install **Pre-check** in original SAP BW system

Realization Phase

- ② Install **Transfer Cockpit** in original SAP BW system
- ③ Install **ODP updates** in each SAP source system
- ④ Install **Transfer Cockpit** in target SAP BW/4HANA system

Complete installation process is supported by the **SAP BW Note Analyzer**

Install **Pre-check Tool** in **Preparation Phase**

- ① For SAP BW from 7.0 to 7.4, use [SAP_BW4HANA_Pre_Checks_\[last_update\].xml](#)
- ① + ② For SAP BW 7.5, the pre-checks cannot be installed isolated but are bundled with the Transfer Cockpit, use [SAP_BW4HANA_Conversion_SAP_BW_750_\[last_update\].xml](#)

Install **Transfer Cockpit** and Perform a **Shell Conversion** in **Realization Phase**

- ② For SAP BW from 7.0 to 7.4 acting as sending system for a shell conversion, use [SAP_BW4HANA_Shell_Conversion_\(Original_System\)_\[last_update\].xml](#).
For SAP BW 7.5, use [SAP_BW4HANA_Conversion_SAP_BW_750_\[last_update\].xml](#).
- ③ For source systems connected to SAP BW, use [Source_System_for_SAP_BW4HANA_\[last_update\].xml](#)
- ④ For SAP BW/4HANA acting as receiving system for a shell conversion, use [SAP_BW4HANA_Shell_Conversion_\(Target_System\)_\[last_update\].xml](#)

7.2 Change Management

7.2.1 General Procedure

A system landscape consists of at least two, typically three tiers of systems: development, test, and production systems. The goal of a system conversion is, of course, to fully convert all systems of the landscape starting with development and ending with a go-live of the new production system on SAP BW/4HANA.

This chapter describes the high-level process on how changes are captured in development and applied to downstream systems. In general, the standard Transport Management System (TMS) is used. An exception are scope selections that are retrieved in test and production systems from the development system using an RFC connection.

Related Information

[Change Control Management](#)

[SAP Solution Manager Processes](#)

7.2.2 Change Management for In-place Conversion

The in-place conversion is defined and executed in the development system using a task list run (steps 1 and 3).

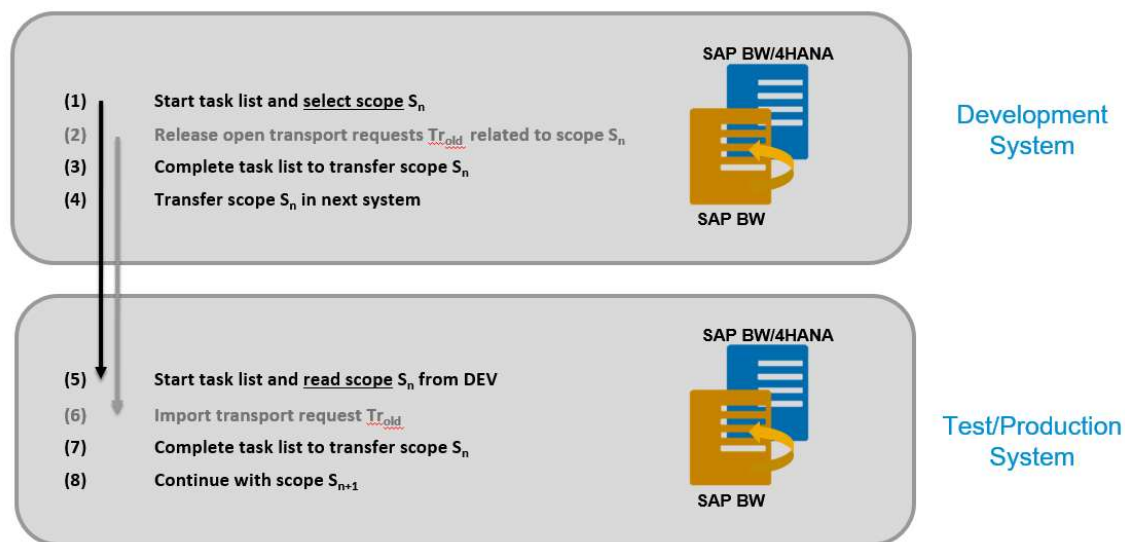


Figure 13: In-place Conversion Process

To apply the changes to the test or production system, run the same task list in this system, using the scope selection defined in the development system (steps 5 and 7). Repeat the complete process until all scenarios are transferred from SAP BW to SAP BW/4HANA (step 8).

Once a scope transfer is completed, you can use the new objects and – like any other objects in SAP BW – you can change and transport them to other systems.

→ Important

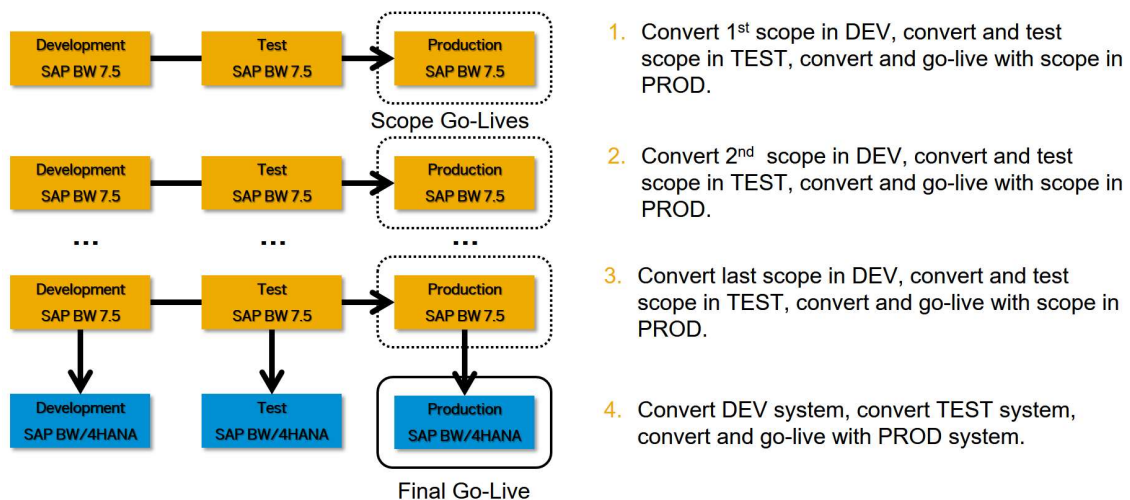
Objects that are part of the scope selection and included in an open transport request, cannot be transferred. You will have to release such transports and import them to the test and production systems (steps 2 and 6).

→ Note

The task list has to be executed in each system since systems contain local configuration and it's possible that objects (for example, BW queries) have been created in the test or production systems directly (i.e. without transport from development).

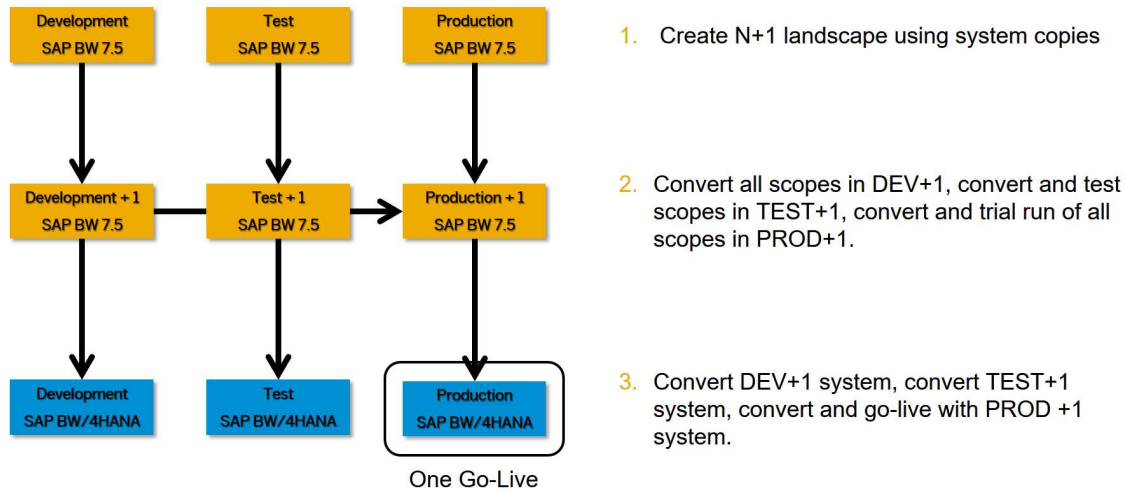
Once all objects have been transferred and the system has been switched to B4H mode, you finalize the system conversion to SAP BW/4HANA in each system by switching to ready-for-conversion mode, performing technical system conversion, and executing any required post conversion tasks.

The transfer of objects is processed per scope (scope selection). Therefore, a phased “go-live” of the SAP HANA-optimized scenarios in the SAP BW production system will be the most common case. Once all scenarios are SAP HANA-optimized and compatible with SAP BW/4HANA, i.e. the SAP BW system is running in B4H mode, the system conversion to will be the ultimate step to complete the transition to SAP BW/4HANA and go-live.



An alternative approach is to use an N+1 landscape for the complete transition process. In this case, all scenarios are transferred and SAP HANA-optimized in the N+1 landscape only. The transfer is followed by the system conversion and go-live of the N+1 systems. Since ad-

ditional production-size hardware is required, this approach is only feasible for small to medium size systems.



7.2.3 Change Management for Remote Conversion

The remote conversion is defined and executed in the development system using the SAP BW/4HANA Conversion Cockpit and a corresponding task list run (steps 1 to 9). Objects, which are selected to be transferred, are recorded in a transport of copies. This transport is then imported into the target SAP BW/4HANA development system. During the after-import phase, object will be transferred to SAP HANA-optimized objects (steps 4 and 5). If necessary, you can adjust objects in SAP BW/4HANA, for example, to align custom transformation routines to the new data model (step 6). You can now transfer the data from SAP BW (steps 7 and 8).

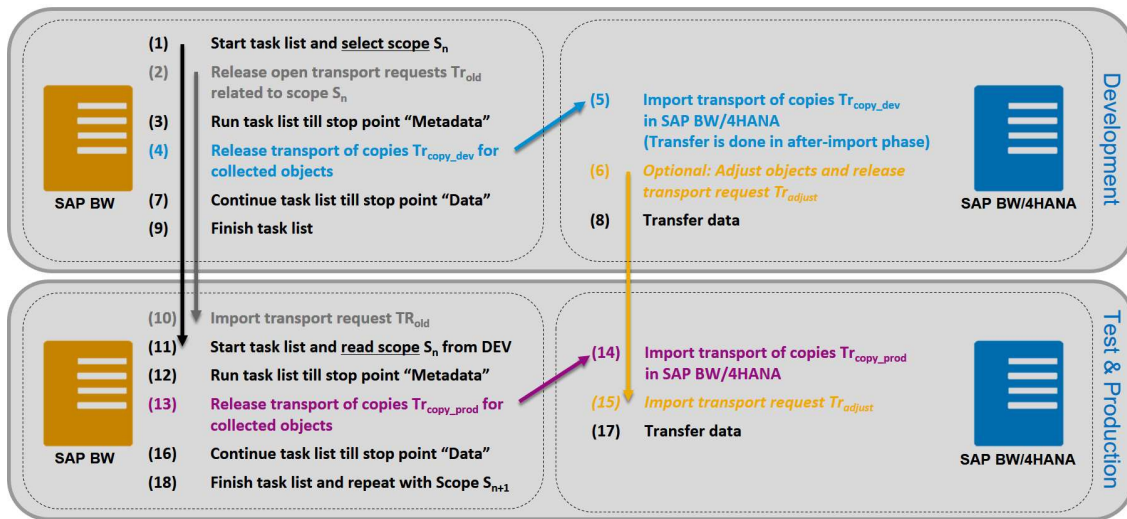


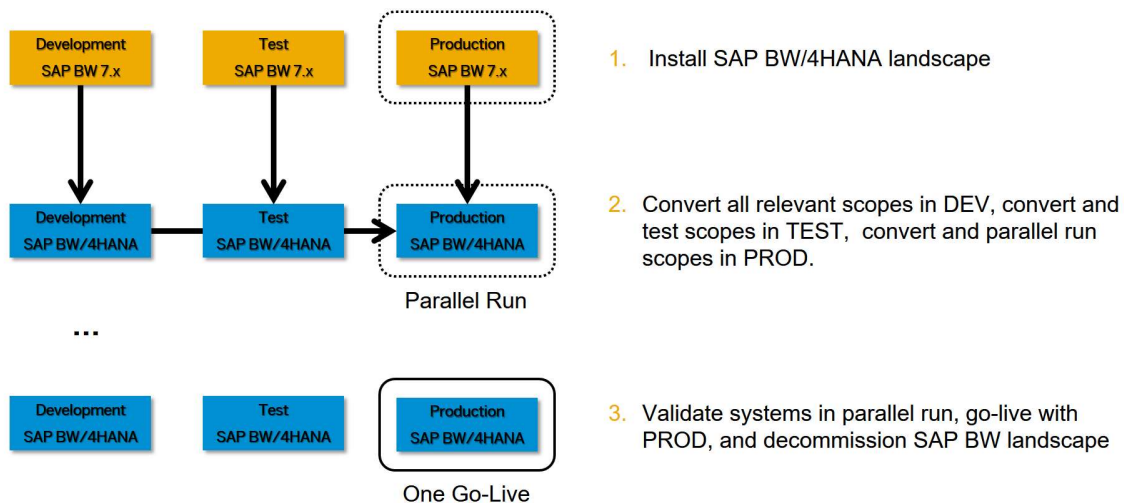
Figure 14: Remote Conversion Process

To apply the changes to test and production systems, the same task list in these systems, using the scope selection defined in the development system (steps 11 to 18). Repeat the complete process until all scenarios are transferred from SAP BW to SAP BW/4HANA.

→ Important

Objects that are part of the scope selection and included in an open transport request, cannot be transferred. You will have to release such transports and import them to the test and production systems (steps 2 and 10).

The parallel run of SAP BW and SAP BW/4HANA is used to test and validate the new SAP BW/4HANA system. The go-live is then completed by the decommissioning of the SAP BW system landscape.



→ Note

During Remote and Shell Conversion the receiver SAP BW/4HANA Systems are in so called 'transfer mode'. Please check the SAP Note [2799235](#) if you plan to execute the standard transports in SAP BW/4HANA System Landscape during or after conversion phase.

7.2.4 Change Management for Shell Conversion

A shell conversion process works similarly to the remote conversion transferring objects from SAP BW to SAP BW/4HANA. The main difference is around the data transfer. During remote conversion the complete data of an InfoCube or classic DataStore object is transferred, whereas during the shell conversion no data is moved to SAP BW/4HANA. Nevertheless, you can decide to load/reload data from the original SAP BW system or from the source systems. Since this is a standard data load, you may choose to load only a subset of the data (not shown in figure).

The shell conversion begins by running the task list in the original SAP BW development system. Objects that are part of the scope selection are recorded in a transport of copies (steps 1 to 4). When you import this transport into the target SAP BW/4HANA development system, the transfer of objects happens in the after-import method (step 5).

Option 1: Scope Transfer from Original Test/Production

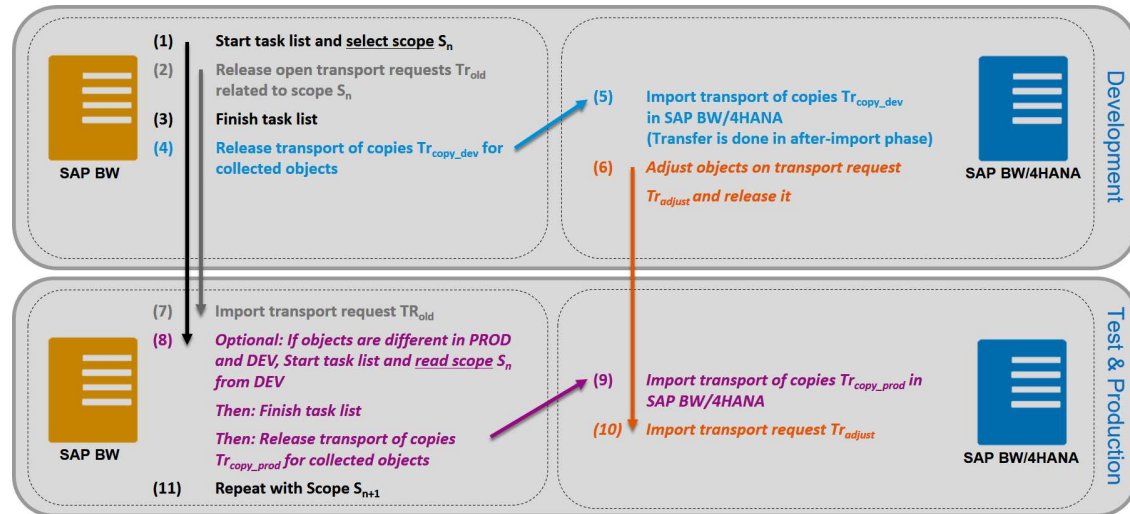


Figure 15: Shell Conversion Process – Transfer from Test/Production

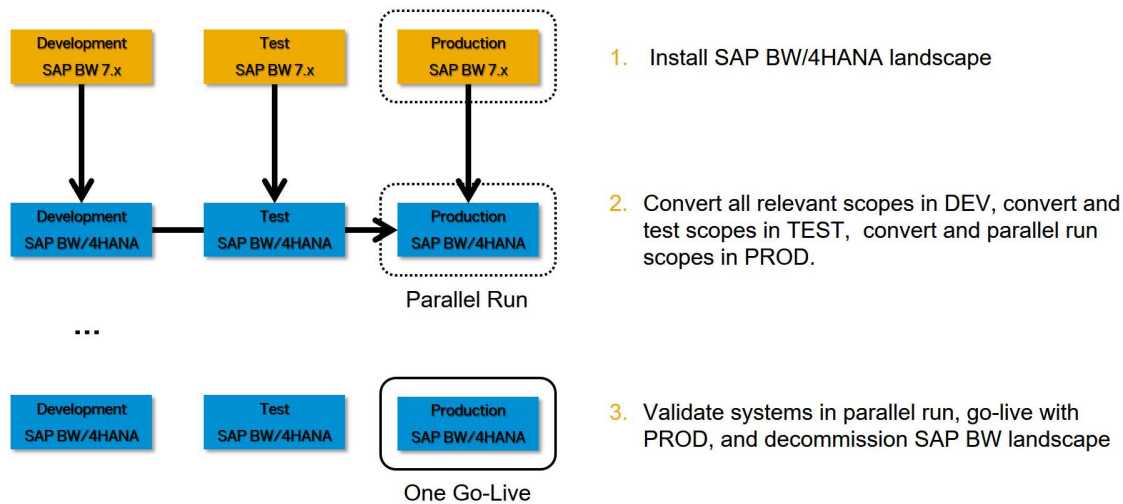
At this time and if necessary, you can adjust objects in SAP BW/4HANA (step 6). One option is to build the test and production SAP BW/4HANA systems from the corresponding SAP BW systems. Start the task list again in the test or production system and read the scope selection from the SAP BW development system. After finalizing the task list, import the generated transport of copies into the corresponding SAP BW/4HANA test or production system (steps 8 and 9). If you adjusted objects in SAP BW/4HANA development, you must import the corresponding transport request now (step 10).

Repeat the complete process until all scenarios are transferred from SAP BW to SAP BW/4HANA.

→ Important

Objects that are part of the scope selection and included in an open transport request, cannot be transferred. You will have to release such transports and import them to the test and production systems (steps 2 and 7).

The parallel run of SAP BW and SAP BW/4HANA is used to test and validate the new SAP BW/4HANA system. The go-live is then completed by the decommissioning of the SAP BW system landscape.



Option 2: Scope Transfer with Transport from Target Development

If you want to build test and production systems only based on the new SAP BW/4HANA development configuration, then you collect all objects in a transport request (not the original objects from SAP BW but the new objects from SAP BW/4HANA) and import it into the rest of the SAP BW/4HANA landscape (steps 6 and 8).

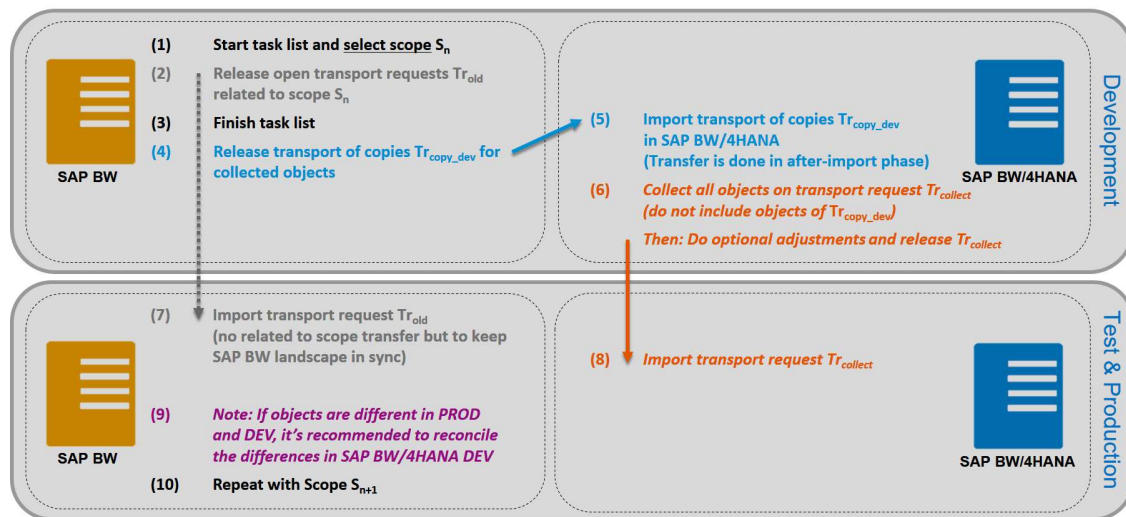
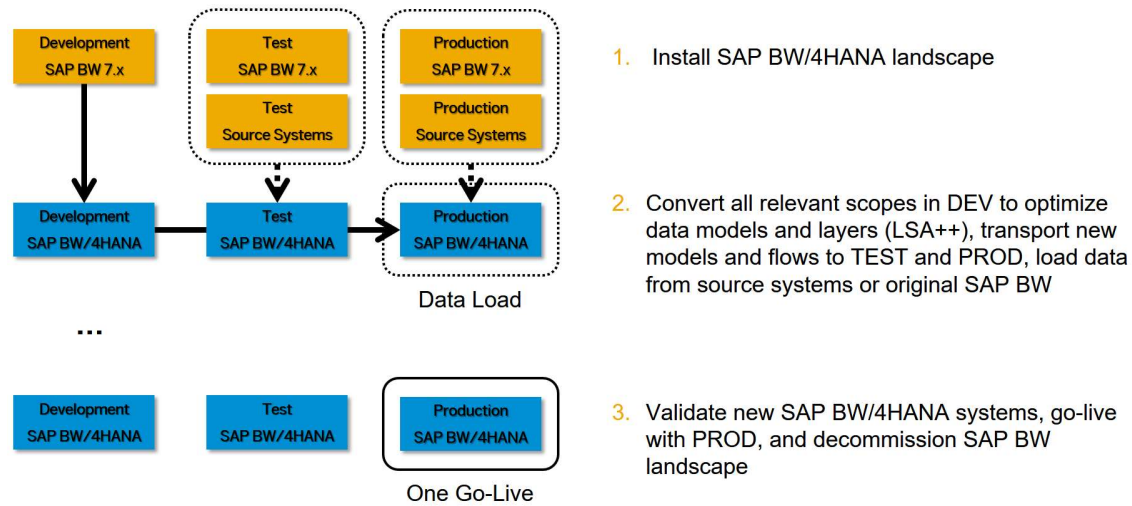


Figure 16: Shell Conversion Process – Transport from Development

An alternative is the so-called “accelerated greenfield approach”. The shell conversion is only used for the development system in order to build the new SAP BW/4HANA development system. Instead of starting completely from scratch as in a regular greenfield approach, you typically transfer relevant base data models and inbound data flows but leave “aggregation layers” behind. This way you can setup an optimized and LSA++ compliant SAP BW/4HANA system.

Test and production SAP BW/4HANA system are then supplied using regular transports from SAP BW/4HANA development followed by data loads either from the original source systems or the original SAP BW landscape.



→ Note

During Remote and Shell Conversion the receiver SAP BW/4HANA Systems are in so called 'transfer mode'. Please check the SAP Note [2799235](#) if You plan to execute the standard transports in SAP BW/4HANA System Landscape during or after conversion phase.

7.3 Security

7.3.1 General Procedure

The transition to SAP BW/4HANA has to go along with a proper setup of roles for managing the conversion process as well as the conversion of existing user roles. This chapter describes the setup and conversion for standard as well as for analysis authorizations.

7.3.2 Standard Authorizations

A file attached to SAP Note [2468657](#) contains a list of authorization objects available in SAP BW and shows if they are available in SAP BW/4HANA or need to be replaced with a different authorization object. Your security profiles and roles must be adjusted accordingly.

Authorizations for Conversion Process

When using the Transfer Cockpit – specifically the scenario transfer – some additional authorizations are required. In particular, the security of the conversion process is managed

using authorization S_RS_B4H. The particular authorizations that are necessary are defined in this document at the beginning of each chapter in the “Prerequisites” section.

A consolidated list of authorization objects and values required for in-place as well as remote conversion is attached to SAP Note [2383530](#).

A detailed list of authorization for remote conversion and a corresponding role template is available via SAP Note [2280336](#). For executing a remote conversion, SAP role SAP_LTRL_MASTER contains all required authorizations.

Standard Authorizations for SAP BW

After a successful scope transfer, you must adjust the security profiles and roles for your end users accordingly, for example grant them access to CompositeProviders instead of MultiProviders. For in-place conversion, you can adjust your roles manually (transaction PFCG) or use the SAP BW/4HANA Transfer Cockpit (see chapter 4.9 Executing Transfers of Standard Authorizations).

For remote conversion, you either maintain new roles in the SAP BW/4HANA target system (see SAP Note [2468657](#)) or you transport the original roles to the target system and use the Authorization Transfer Tool to make the required adjustments.

7.3.3 Analysis Authorizations

Analysis authorization often refer to InfoProviders (using OTCAIPROV). In case the InfoProviders are changed, for example, from a classic DataStore object to a CompositeProvider, such analysis authorizations must be adjusted.

Manually Maintained Authorizations

Analysis authorizations, that are maintained directly in transaction RSEADMIN, are automatically adjusted when using the scope transfer tool.

Generated Authorizations

For analysis authorizations, that are generated from a DataStore object, you have two options:

- Adjust the authorization settings in your DataStore object or
- Use enhancement spot RS_B4H_TRANSFER (BAI RS_B4H_BIAUTH_TRANSFER) to implement your own mapping. This enhancement is called during every generation of analysis authorizations.

Remote & Shell Conversion

Analysis authorizations can be transported from SAP BW to SAP BW/4HANA. The following SAP Notes described the process:

Release		Reference
SAP BW 7.4 SAP BW 7.5	Standard Transport	SAP Documentation
SAP BW 7.3 SAP BW 7.3 EhP 1	Transport of authorization objects from systems with release BW 7.30 and BW 7.3 EHP1 to a BW 7.40/BW 7.50 system	SAP Note 2170099

SAP BW 7.0	Transporting authorization changes	SAP Note 2188981
SAP BW 7.0 EhP1	from systems with release BW	
SAP BW 7.0 EhP 2	7.00, 7.0 EhP1, or 7.0 EhP2 to BW	
	7.40 system	

7.3.4 Replicating Authorizations to SAP HANA

If you are using mixed modeling and are replicating SAP BW authorizations to SAP HANA, you need to update any corresponding authorizations in SAP HANA

For details see, [SAP HANA Authorizations for Mixed Modeling and Other Functions. Replicating BW Analysis Authorizations to SAP HANA](#) and note <https://launchpad.support.sap.com/#/notes/3007904>.

7.4 Additional Tools

This chapter describes programs that can be used in certain situations, for example, to reset a task list run.

7.4.1 Reset In-place Task List Run (Excluding Data Objects)

	In-place Conversion	Remote Conversion	Shell Conversion
Use Case	✓	✗	✗
To be executed in	Original System	✗	✗
Program	RS_B4HANA_INPLACE_CLEANUP		
Scope	A task list run		
Purpose	In case that the new objects have been deleted manually, the program resets the METADATA, SECURED, DATA and REQUEST flags and the data and request transfer control information so that the transfer can be repeated once the old objects had been recreated.		
Conditions	The program does not bring back the old objects, which had been transferred. They have to be recreated manually or by transport.		

7.4.2 Reset Remote Task List Run

	In-place Conversion	Remote Conversion	Shell Conversion
Use Case	✗	✓	✓
To be executed in	✗	Original System	Original System
Program	RS_B4HANA_TRANSFER_REM_RESET		
Scope	A task list run		
Purpose	The program remotely deletes in the target system the generated objects, the data transfer control entries and the request transfer control entries and resets the METADATA and DATA flags.		
Conditions	The SAP BW/4HANA Conversion Cockpit run must still be active (which is always the case, unless another sender has started transfer into the same receiver).		

7.4.3 Reset Delta Clone

	In-place Conversion	Remote Conversion	Shell Conversion
Use Case	✗	✓	✗
To be executed in	✗	Original System	✗
Program	RS_B4HANA_RESET_DELTA_CLONE		
Scope	A task list run		
Purpose	After errors in delta queue synch task, the program remotely deletes in the SAP BW source system the created delta queues, removes the delta load locks, and resets the status of the delta queue clone and delta load confirmation tasks, so that they can be executed again.		
Conditions	Task list run must be changeable.		

7.4.4 Reset Metadata Flags for Objects of Remote Transfer Transport

	In-place Conversion	Remote Conversion	Shell Conversion
Use Case	✗	✓	✓
To be executed in	✗	Target System	Target System
Program	RS_B4HANA_REQUEST_RESET		
Scope	A transfer transport request		
Purpose	From the objects on the transport, user can choose all or particular objects. The program sets or removes the METADATA flag of these objects (as per user choice), so that the import can be repeated for these objects, even though they had already been successfully imported.		
Conditions	No data or requests have been transferred for the object.		

7.4.5 Terminate transfer mode for Remote and Shell Transfer

	In-place Conversion	Remote Conversion	Shell Conversion
Use Case	✗	✓	✓
To be executed in	✗	Original System	Original System
Program	RS_B4HANA_TRANSFER_REM_END		
Scope	A finalized scope transfer		
Purpose	During the SAP BW/4 remote and shell transfer, the SAP BW/4 systems are in a transfer mode. The transfer of the collected objects that require conversion takes place in the after-import method of the transport. This means that all transports that need to be imported are checked and the objects are converted. This applies to both the transfer transports and the transports generated in SAP BW/4. However, transports from the SAP BW/4 landscape do not work, and generally terminate.		
Conditions	Scope transfer has been finished in target system.		

7.4.6 Start BW After-Import Routine for Transport Request

	In-place Conversion	Remote Conversion	Shell Conversion
Use Case	✗	✓	✓
To be executed in	✗	Target System	Target System
Program	RSDG_AFTER_IMPORT_FOR_CORR		
Scope	A transfer transport request		
Purpose	For all or selected object types, the after-import (i.e. the actual transfer) of the objects can be repeated. The same can be achieved by re-importing the request via STMS, this report however enables debugging of the after-import methods.		
Conditions	The log is not appended to the logs of the transport request.		

7.4.7 Clean-up InfoCube Metadata after Remote/Shell Conversion

	In-place Conversion	Remote Conversion	Shell Conversion
Use Case	✗	✓	✓
To be executed in	✗	Target System	Target System
Program	RS_B4H_CLEANUP_METADATA		
Scope	System-wide		
Purpose	After a successful transfer of InfoCubes to DataStore objects (advanced), you can remove the obsolete InfoCube metadata from the system.		
Conditions	Do not run if there are any pending transfers.		

7.5 Data Storage Security

7.5.1 In-place Conversion

During an in-place conversion, the SAP BW/4HANA Transfer Cockpit does not create or store any sensitive data. However, during a scope transfer, transaction data is copied from the original InfoProvider to a HANA-optimized DataStore objects (advanced). Depending on the type of InfoProvider, data might be stored in a temporary database table.

These temporary tables are not accessible to SAP users and are deleted at the end of each scope transfer.

7.5.2 Remote Conversion

During a remote conversion, the SAP BW/4HANA Conversion Cockpit does not create or store any sensitive data. However, during data selection, it extracts data relevant for migration from the application tables of the original system and stores it separately in a cluster format, which is later transferred to the target system.

This data is not accessible to the SAP BW/4HANA Conversion Cockpit dialog user. However, the data protection depends on the original system being marked as a production client, or by restricting access to the report RSINDX00, which requires administrative authorizations.

You can access the data stored in the data cluster with the transaction CNVLTRL_MONITOR, only if have authorization of authorization object LTRI_EXE and have access of standard tables using transaction SE16.

By default, SAP BW/4HANA Conversion Cockpit copies data as it is from the original system to the target system.

The transfer of data in SAP BW/4HANA Conversion Cockpit is using an RFC connection, which allows for a high level of security.

7.5.3 Shell Conversion

During a shell conversion, the SAP BW/4HANA Transfer Cockpit does not create or store any sensitive data. Only metadata is transferred from the original to the target system.

7.6 Traces and Log Files

SAP BW/4HANA Transfer and Conversion Cockpits do not create any trace files. However, both cockpits write information into the SAP application log for each activity in the task list runs (in-place and shell) as well as for activities in the process tree (remote). These logs show which user executed a given activity at what time, and for which systems.

You can access the application log directly (transaction SLG1), from the task list framework (transaction STC02), or from the process monitor of the SAP BW/4HANA Conversion Cockpit.

7.7 Data Protection

Data protection is associated with numerous legal requirements and privacy concerns. In addition to compliance with general data privacy acts, it is necessary to consider compliance with industry-specific legislation in different countries. This section describes the specific features and functions that SAP provides to support compliance with the relevant legal requirements and data privacy.

This section and any other sections in this guide do not give any advice on whether these features and functions are the best method to support company, industry, regional or country-specific requirements. Furthermore, this guide does not give any advice or recommendations with regard to additional features that would be required in a particular environment; decisions related to data protection must be made on a case-by-case basis and under consideration of the given system landscape and the applicable legal requirements.



Caution

In the majority of cases, compliance with data privacy laws is not a product feature.

SAP software supports data privacy by providing security features and specific data-protection-relevant functions such as functions for the simplified blocking and deletion of personal data.

SAP does not provide legal advice in any form. The definitions and other terms used in this guide are not taken from any given legal source.

Glossary

Term	Definition
Personal data	Information about an identified or identifiable natural person.
Business purpose	A legal, contractual, or in other form justified reason for the processing of personal data. The assumption is that any purpose has an end that is usually already defined when the purpose starts.
Blocking	A method of restricting access to data for which the primary business purpose has ended.
Deletion	Deletion of personal data so that the data is no longer usable.
Retention period	The time period during which data must be available.
End of purpose (EoP)	A method of identifying the point in time for a data set when the processing of personal data is no longer required for the primary business purpose. After the EoP has been reached, the data is blocked and can only be accessed by users with special authorization.

Some basic requirements that support data protection are often referred to as technical and organizational measures (TOM). The following topics are related to data protection and require appropriate TOMs:

- Access control: Authentication features as described in section User Administration and Authentication.
- Authorizations: Authorization concept as described in section Authorizations.
- Read access logging: As described in section Read Access Logging.
- Transmission control / Communication security: as described in section Network and Communication Security.
- Separation by purpose: Is subject to the organizational model implemented and must be applied as part of the authorization concept.



Caution

The extent to which data protection is ensured depends on secure system operation. Network security, security note implementation, adequate logging of system changes, and appropriate usage of the system are the basic technical requirements for compliance with data privacy legislation and other legislation.

7.7.1 Additional Information for Cluster Tables

Data in cluster tables (INDX-like tables) is stored in a compressed and raw data format. Data from a cluster table cannot be read in a usual way. Only applications that have specific authorizations can read data from these tables and write its data to standard tables in a readable format.

With SAP BW/4HANA Conversion Cockpit, you are able to transform data from cluster tables into a readable format.

Data from cluster tables may need to be made transparent for audit or analysis purposes. However, once data is extracted from a cluster table and is moved to a standard table in a readable format, the original authorization concept no longer applies. That is, data in standard tables can be read using functions that are not application-dependent, and which typically lack the authorizations that applied to the source cluster table. For example, standard tables can be accessed by using transaction SE16.

Cluster tables can contain data of a personal or sensitive personal nature. This type of table is used extensively by a remote conversion. The customer must ensure that the transparent data extracted from cluster tables is protected in a manner that conforms to local data protection regulations.

An additional consideration for cluster tables concerns transaction CNVLTRL_MONITOR, which is delivered with SAP BW/4HANA Conversion Cockpit. If a user has the authorizations required to use this transaction, they can view the data from cluster tables directly. This data can be highly sensitive, and the environment could be productive. With sufficient authorizations, a user can simply select a cluster table, then an application area such as Payroll Results, and then view individual records containing, for example, wage type and money amounts for specific personnel numbers.

Since transaction CNVLTRL_MONITOR is so critical, there is no standard role that enables a user to use it. In addition, the authorizations required are very strict and should only be granted to a user that has a specific requirement to test or analyze a SAP BW/4HANA Conversion Cockpit. It must be understood that a user with the required authorizations can then see all the data in the specifically selected cluster table.

7.7.2 Deletion of Personal Data

The SAP BW/4HANA Conversion Cockpit uses cluster tables to store the data in compressed and raw format. These cluster table can contain data of a personal and sensitive

personal data (see above). This type of table is extensively used during a remote conversion. To ensure the data privacy please refer to SAP Note [2582068](#) to clear information stored in clusters tables.

→ Note

Please note data in cluster tables is helpful when analyzing possible problems after the respective conversion and simplifies – if required – an error correction. Therefore, you should delete information in these table at the latest when the target system is validated, live, and business is resumed as usual.

7.8 SAP Product Support

In case of any issues with the SAP BW/4HANA Transfer or Conversion Cockpits or related conversion processes, contact SAP Product Support on [SAP Support Portal](#).

If you create an incident report, use the following components:

In-Place Conversion:

BW-B4H-CNV-IPL

Shell Conversion:

BW-B4H-CNV-SHL

Remote Conversion:

BW-B4H-CNV-RMT (SAP BW/4HANA Transfer Cockpit) or
CA-LT-BW4 (SAP BW/4HANA Conversion Cockpit)

7.9 New Features

We have documented new developments in the WIKI:

<https://wiki.scn.sap.com/wiki/pages/viewpage.action?pagelId=550043910>.

7.10 Online Documentation

System conversion related information in online documentation:

SAP HANA Documentation

https://help.sap.com/viewer/p/SAP_HANA_PLATFORM

SAP BW/4HANA Documentation

https://help.sap.com/viewer/p/SAP_BW4HANA

- Master and Conversion Guides for SAP BW/4HANA
- Task List Documentation for Conversion to SAP BW/4HANA
- Simplification List for SAP BW/4HANA
- User Guide for SAP BW Note Analyzer

SAP Readiness Check for SAP BW/4HANA

https://help.sap.com/viewer/p/SAP_READINESS_CHECK

SAP Landscape Transformation

https://help.sap.com/viewer/p/SAP_LANDSCAPE_TRANSFORMATION

Maintenance Planner

<https://help.sap.com/maintenanceplanner>

Software Logistics Toolset

<https://support.sap.com/sltoolset>

- Software Provisioning Manager (SWPM)
- Software Update Manager (SUM)

SAP Product Support

<https://support.sap.com/incident>

[Custom Code Migration](#)

7.11 Additional Information

Please check the following helpful links:

Note implementation:

<https://wiki.scn.sap.com/wiki/pages/viewpage.action?pageId=550043910>

Collection behavior:

<https://wiki.scn.sap.com/wiki/pages/viewpage.action?pagelId=545395308>

OLOGSYS and OSOURCESYSTEM

<https://wiki.scn.sap.com/wiki/pages/viewpage.action?pagelId=552603638>

Steps to consider

<https://blogs.sap.com/2021/02/02/sap-bw-4hana-conversion-steps-to-consider/>



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